

August 1954

RAILWAY

TRACK *and* STRUCTURES

This Issue . . .

Versatile Off-Track
Machine on C&NW

Hy-Rail Cars Used
Extensively on NH

Tric Installs
No. 24 Turnouts

Bridge Erected on
Rolling Bents

Contents—
page 31

Whether track be straightaway or tangent, the constant stresses and strains of fast passenger trains and heavy freights tend to loosen bolt tensions. No road is completely free from the danger of loosened bolts.

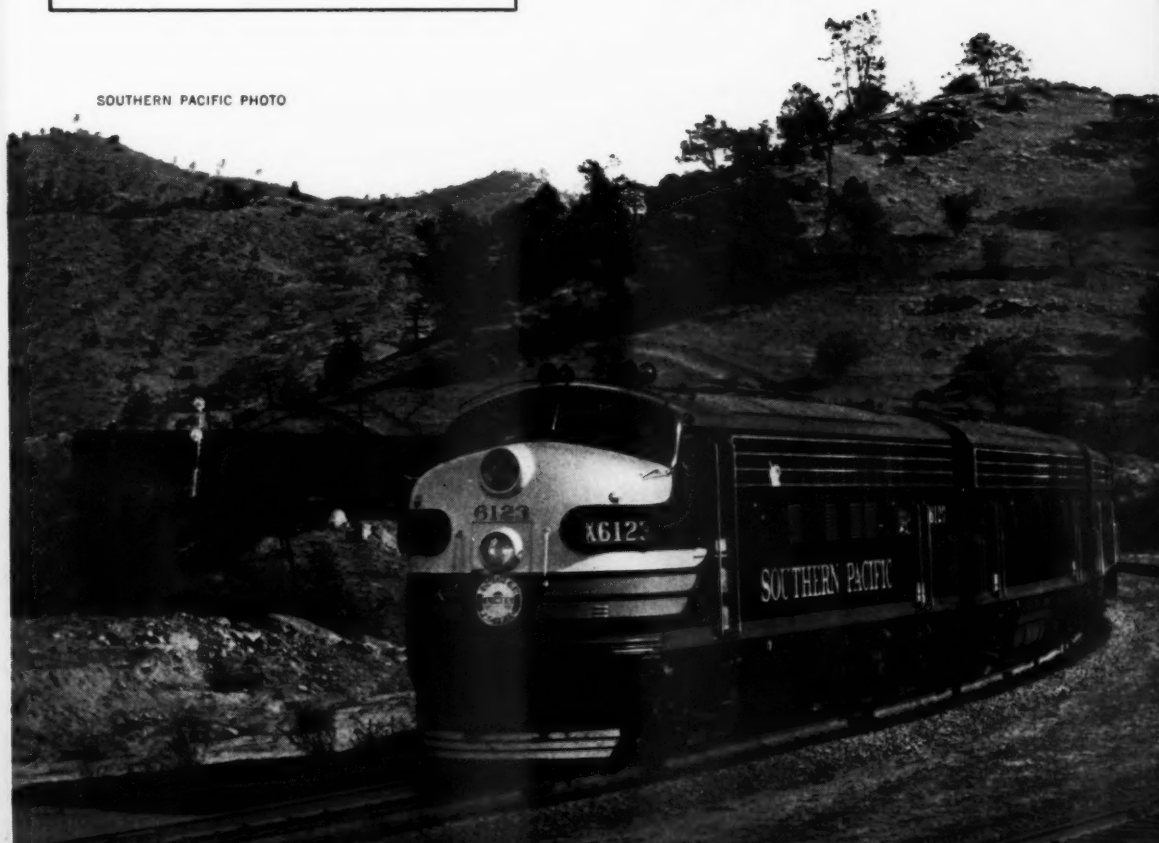
The best laid track always includes powerful spring washers. They equalize bolt tensions, insure resilient joints and protect rail ends by absorbing the terrific shocks and stresses.

IMPROVED HIPPOWERS

IMPROVE TRACK



SOUTHERN PACIFIC PHOTO

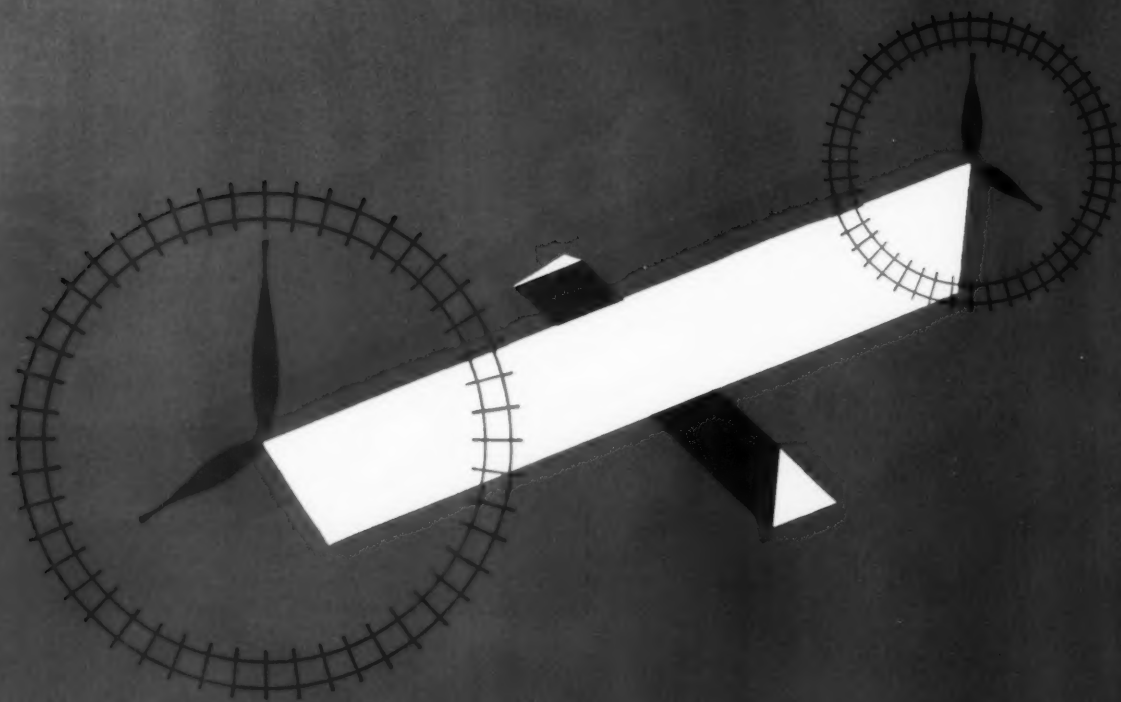


THE NATIONAL LOCK WASHER COMPANY, NEWARK 5, N. J., U.S.A.
A COMPLETE LINE OF RAILWAY SPRING WASHERS

FORMERLY

Railway
Engineering and
Maintenance

Let Reliance HY-CROME® Spring Washers help you



increase time between Track Joint Maintenance Periods

Lengthening the time between periodic tightening of rail joint bolts reduces the cost of maintaining track.

Reliance Hy-Crome Spring Washers are a product of the combined engineering experience of Eaton-Reliance fastening engineers, railroad track engineers and modern manufacturing methods.

To keep track joints tighter longer, a spring washer with adequate non-fatiguing reactive pressures had to be developed. Reliance Xtra-hy Hy-Crome Spring Washers were specifically developed to meet and exceed the 1948 A. R. E. A. Specifications.

Manufactured from special alloy spring steel of correctly engineered section sizes, their inherent reactive pressure over a wide reactive range is able to automatically compensate for developed looseness in the rail joint assembly and to keep it tighter longer.

A trial will convince you. Write now for Reliance Hy-Crome Spring Washer Folder R53.

"SPRINGTITE" AND "HOZ-FAS-NER" ARE REGISTERED TRADEMARKS OF THE EATON MANUFACTURING COMPANY



"Edgemark of Quality"

RELIANCE DIVISION

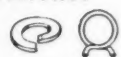


MANUFACTURING COMPANY

OFFICE and PLANTS: 601 Charles Ave., MASSILLON, OHIO

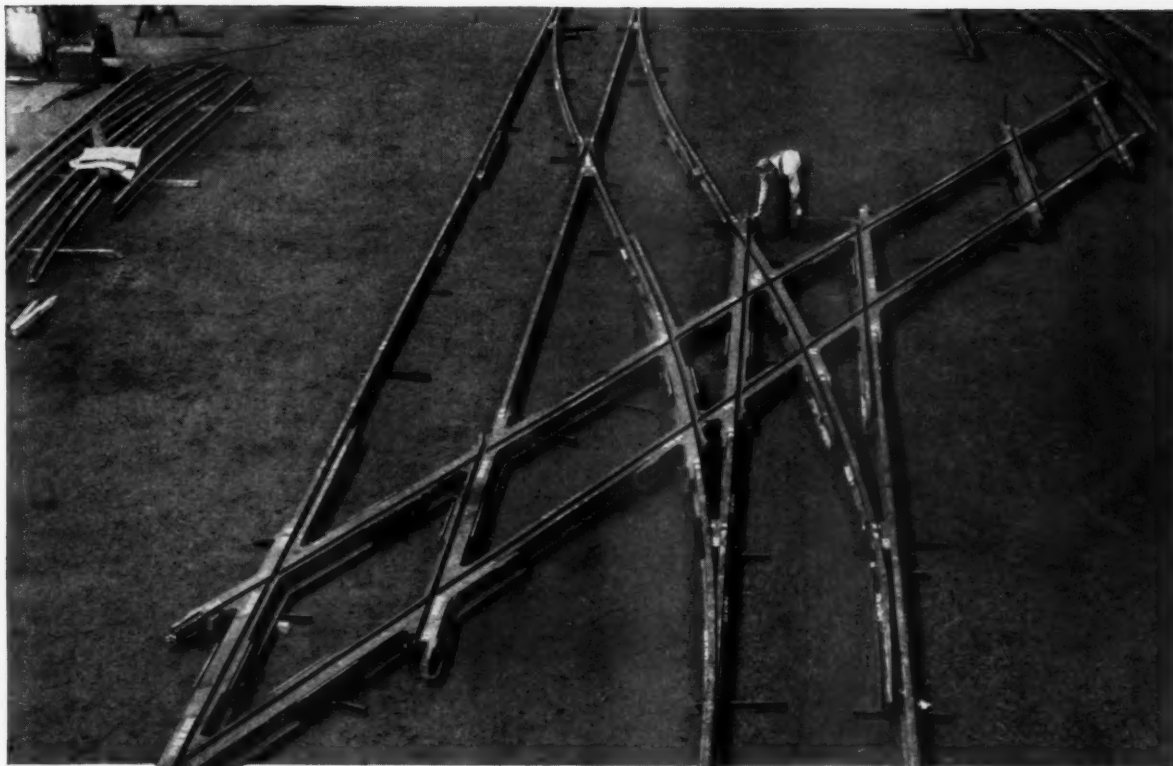
SALES OFFICES: New York • Cleveland • Detroit • Chicago • St. Louis • San Francisco • Montreal

PPR OC



Springtite and Hoz-Fas-Ner Retaining Rings

Special Steels Spring Lock Washers Hoz-Fas-Ners



Special Trackwork?

IT GETS SPECIAL HANDLING HERE

Need some out-of-the ordinary trackwork? A double slip? High-speed crossover? Or perhaps a complicated arrangement like the industrial layout shown above?

Turn the job over to Bethlehem. Just give us the details, we'll take over from there.

Here's how we operate: First, we prepare approval plans. After you OK them, we fabricate the track components. Then comes complete assembly of the job at our plant—yes, we have plenty of floor space to handle even an extensive layout!

When we're satisfied that all parts fit together, and all drillings, alignment and gage are correct, we matchmark the trackwork to correspond with like markings on the installation plan. Then—and only then—we tear down the assembly to suitable sections for shipping to the

job site. This technique substantially reduces installation costs and scrap loss, by eliminating all field cutting, curving and drilling of rails.

You'll find this the easy and satisfactory way to get that special trackwork you need. And the economical way. Just ask a Bethlehem engineer; he's available through the nearest Bethlehem office.

BETHLEHEM STEEL COMPANY

BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation



Published monthly by Simmons-Boardman Publishing Corporation, 79 W. Monroe St., Chicago 3, Ill. Subscription prices: to railroad employees only in the United States and Possessions, and Canada, one year \$2.00; \$3.00 for two years. Single copies 50 cents. Entered as second-class matter January 20, 1933, at the post office at Chicago, Ill., under the act of March 3, 1879, with additional entry at Bristol, Conn. Volume 50, No. 8.

PULLMAN-STANDARD



Pullman-Standard Power Cribber— The Pullman-Standard Power Track Cribber gives two cribs a minute with a single operator. With a normal production rate of 150 to 400 track-feet per hour, its interchangeable 4-, 5-, and 6-inch digger tips enable it to crib efficiently and economically, regardless of cementation.

Pullman-Standard Power Ballaster— With a production rate of 500 to 700 feet an hour, a Pullman-Standard Power Ballaster, run by a single operator, can be efficiently manned by a crew of 10 to 15 men. Case history studies made on 16 railroads prove that this unit will give more feet of finished tamped track per hour, with less labor and maintenance, than any other production tamper.

Pullman-Standard Power Cleaner and Winch Car Team— For the first time both track shoulders can be cleaned simultaneously at 1000 to 1200 feet per hour with only four men. Even in multiple track territory, the shoulder plus half the six-foot are cleaned to a depth of eight to ten inches below the tie base at the same high rate and with the same low labor complement. Your ballast cleaning costs can be reduced by as much as 50%.

D POWER CRIBBER

- 100-400 feet of finished cribbed track per hour.
- From loose sand and cinders to cemented rock, no ballast is too tough.
- Will clean cribs down to 4 inches in width.
- Adjusts to varying rail heights, digging depths.
- Operated by one man.
- Eliminates costly hand labor.
- Due to special clearance features, can be used to crib and lower track in tunnels and along station platforms.
- Designed for rugged service, easy maintenance.
- Cribs at 8 to 30 cents per track foot.
- PS Cribbers sold in the 1930s are still in service.

We will be pleased to give you complete information on better, faster, lower cost mechanized track maintenance with Pullman-Standard Track Equipment. Just write or phone the Pullman-Standard office located nearest you.

YOUR NEEDS CREATE THE PULLMAN "STANDARD"

PULLMAN-STANDARD

CAR MANUFACTURING COMPANY

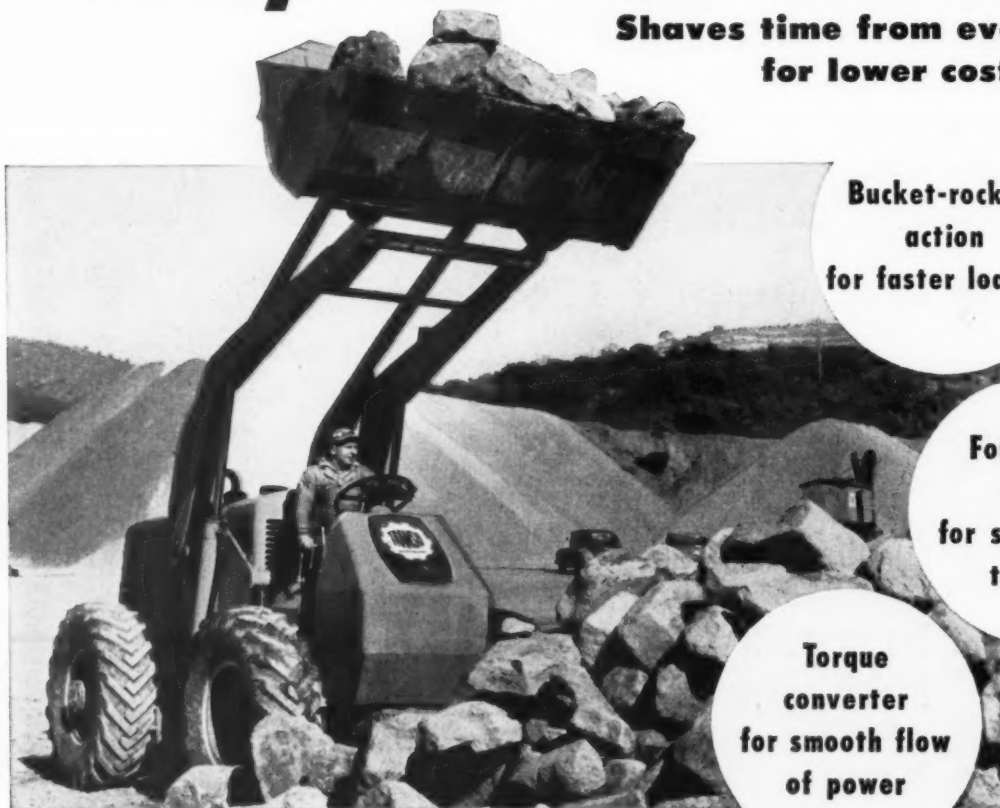
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75 EAST ADAMS STREET, CHICAGO 3, ILLINOIS

BIRMINGHAM, PITTSBURGH, NEW YORK, SAN FRANCISCO, WASHINGTON

Always on the Double!

**Shaves time from every cycle,
for lower costs**



**Bucket-rocking
action
for faster loading**

**Four-wheel
drive
for sure-footed
traction**

**Torque
converter
for smooth flow
of power**

LE ROI-TRANSO TLF-150 Front-end Loader

YES, sir, a 1½-yard Le Roi-Transo TLF-150 lets you move more load — faster — at lower cost — without tire spin or undue engine strain — in sand, mud, snow, or rocky terrain. It's engineered that way.

But that's only part of the Le Roi-Transo story. There are other important advantages.

Take maneuverability, for example. The TLF-150 has power steering, short (84") wheelbase, short over-all length, and a small turning radius — so it's easy to handle. Planetary-type, reversing transmission cuts reversing time 85%. The low carrying position of the bucket gives you especially good vision and provides an extra margin of safety.

And when it comes to maintenance, the TLF-150 is built to save you time and money. Engine, transmission, clutches, axle assembly, and torque converter are grouped compactly and are easy to get at.

There are even more reasons why a Le Roi-Transo TLF-150 more than pays its way on material-handling jobs. See for yourself — have your Le Roi-Transo distributor arrange a demonstration.

Write for latest bulletin.

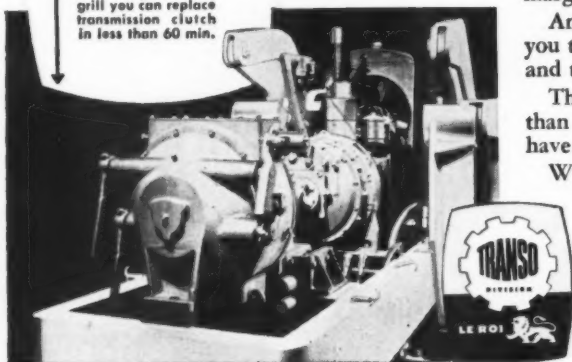
LE ROI COMPANY

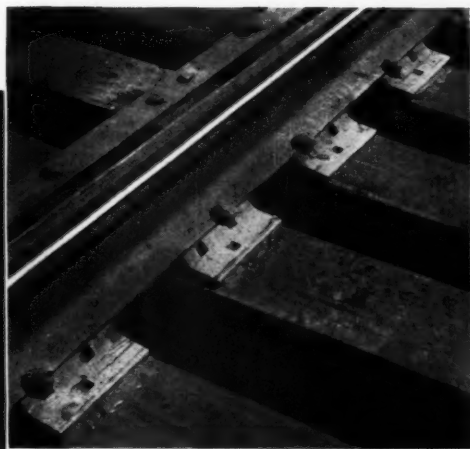
A Subsidiary of Westinghouse Air Brake Co.
TRANSO DIVISION
MILWAUKEE 14, WISCONSIN

Plants: Milwaukee • Cleveland • Greenwich • Dunkirk, Ohio • Coldwater, Mich.

TD-18

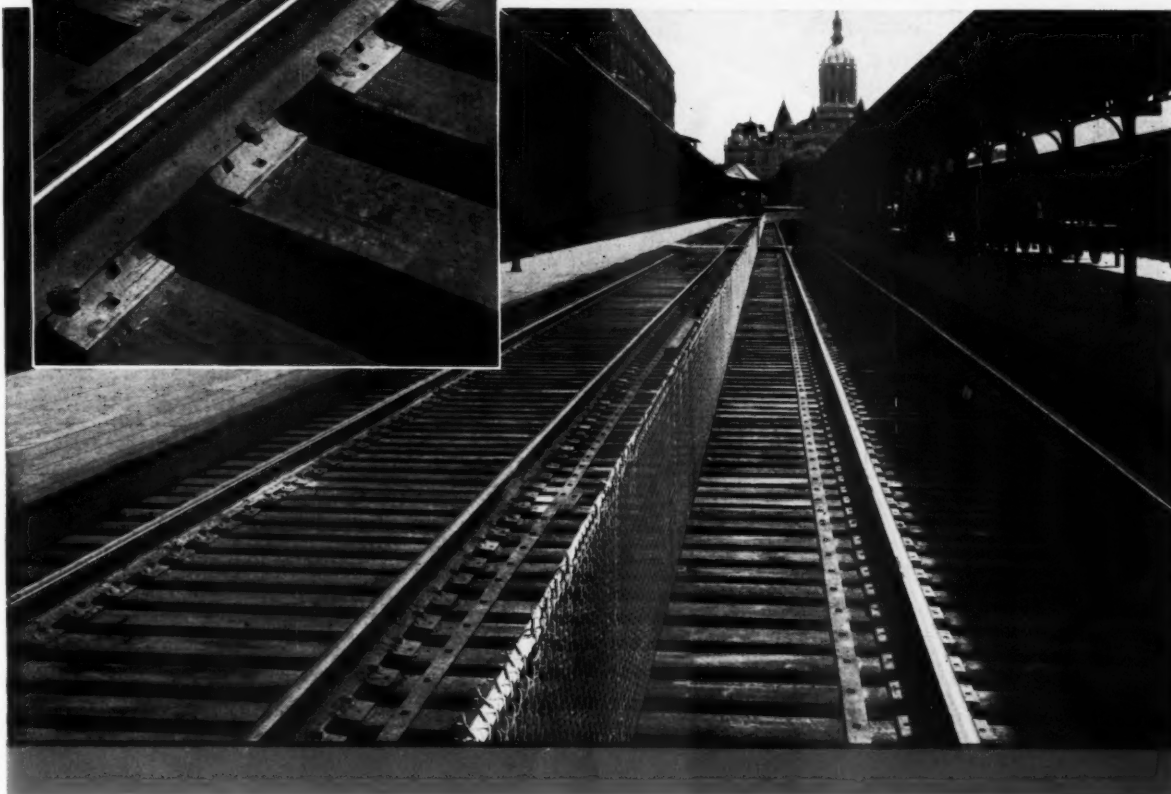
Note how compact arrangement of transmission, clutches, and torque converter puts transfer case conveniently at rear, so by merely removing the rear grill you can replace transmission clutch in less than 60 min.





◀ Close-up showing beading at the ends of the tie pads—indicating proper pad performance.

Bird Self-Sealing Tie Pads on new bridge ties. Pads are symmetrically placed with respect to the tie plates.



Slash your bridge tie costs over 50% with BIRD Self-Sealing TIE PADS

HOW? BIRD Self-Sealing Tie Pads form a waterproof, dustproof seal on the tie that protects the vulnerable area under the plates and around the spikes. Mechanical wear and plate penetration are eliminated. This feature is most important on bridge ties which are the most expensive of all ties. *It's a fact:* only two years of additional tie life (over normal expectancy) will more than pay the cost of BIRD Self-Sealing Tie Pads. Insist on a tie pad which will provide an *effective seal*.

YOU GET 50% or more extra tie life from new ties.

YOU GET at least twice the normal remaining life expectancy from old ties that can be added to a smooth surface of sound wood.

BIRD PROVEN BEST! The original self-sealing tie pad—proven by years of in-track experience.

WHERE?

1. On all new bridge decks.
2. On older bridge decks within the limits of a rail-relaying program.
3. On older bridge ties if a smooth surface of sound wood can be provided.

WHEN? Start now. Write today to BIRD Tie Pads, Dept. HTS-8, East Walpole, Mass.

BUY THE BEST



BUY BIRD

Quick-Change Convertibility

**HELPS YOU HANDLE
ALL THESE JOBS--
AND MORE**

Building and Repairing Bridges •
Trimming and Widening Banks • Handling
Rails • Loading Ballast • Ditching •
Building Up Fills • Roadbed Construction
and Maintenance • Cleaning Up Landslides



Construction and maintenance crews like Bucyrus-Erie machines because quick convertibility from one front end to another makes them versatile enough to handle almost any type of job. In addition, Individual Design of every model in the line matches front ends to each machine's rated capacity to insure efficient performance.

Here's an example of easy convertibility: on the $\frac{3}{4}$ -yard 22-B shown here you can convert from drag-line to shovel simply by adding the crown chain unit and reversing one brake. On any Bucyrus-Erie model, no major main machinery changes are required. You get even more flexibility, too. For example, butt-splices provide for easy insertion and interchangeability of crane boom insert sections; jib extensions can be added without dismantling boom point machinery.

This kind of versatility pays off in work done fast on railroad assignments. See your Bucyrus-Erie distributor soon and get the full story of how Bucyrus-Eries can save you time and money on a wide variety of jobs.

39E54

Available Front Ends on Different
BUCYRUS-ERIE Models

MODEL	CAPACITY	SHOVEL	DRAG-LINE	DRAG-SHOVEL	CRANE	CLAM-SHELL
10-B	$\frac{3}{8}$ -yd.	yes	yes	yes	yes	yes
15-B*	$\frac{1}{2}$ -yd.	yes	yes	yes	yes	yes
22-B*	$\frac{3}{4}$ -yd.	yes	yes	yes	yes	yes
38-B	1 $\frac{1}{2}$ -yd.	yes	yes	yes	yes	yes
51-B	2-yd.	yes	yes	yes	yes	yes
54-B	2 $\frac{1}{2}$ -yd.	yes	yes	yes	yes	yes
71-B	3-yd.	yes	yes	no	yes	yes
88-B	4-yd.	yes	yes	no	yes	yes

*Available with crawler mounting or with Transit Crane (carrier) mounting.

**BUCYRUS
ERIE**

South Milwaukee, Wisconsin

More Elbow Room for the ACL



GOING GREAT IN THE SAND—The ACL wants more room for spur and storage tracks at Smith Creek Yard and gets it in a hurry with two top-performing TD-18As on the job.

FOREMAN-OPERATOR climbed down from his TD-18A long enough to tell us he thinks they're tops. Here's why: *"INTERNATIONALS have the power to self-load scrapers and they can be maneuvered in almost any tight spot we encounter."*



Pair of INTERNATIONAL TD-18As power expansion of Atlantic Coast Line's Smith Creek Yard

When the Atlantic Coast Line needed more room for spur and storage tracks at its Smith Creek Yard at Wilmington, North Carolina, two INTERNATIONAL TD-18A crawlers did all the ground work.

A foreman, who also operates one of the crawlers, puts it this way:

"We work in all types of soil in this railroad construction and the TD-18A is one of the best crawlers for moving dirt fast. We've worked in sand for eleven months straight

and we've had very low maintenance."

This story is repeated the country over. INTERNATIONAL crawlers deliver maximum power at minimum operating cost—day in, day out—on any kind of ground.

These rugged red crawlers will give you the same top performance. See them in action. All you have to do is ask your nearby INTERNATIONAL Industrial Distributor for a demonstration—on your own job—of "power that pays."

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS

POWER THAT PAYS

INTERNATIONAL



For everything in Earthmoving

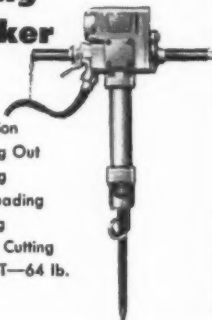
ON TRACKS ... ON RUBBER

See INTERNATIONAL'S
Complete Earthmoving Line

Announcing **BOSCH** High Cycle Electric Tools

Paving Breaker

FOR:
Demolition
Breaking Out
Chiseling
Clay Spading
Tamping
Asphalt Cutting
WEIGHT—64 lb.



Rock Drill

A lightweight tool that matches the performance of pneumatic Drills. Equipped with Pressure Blower.

WEIGHT:
Drill—65 lb.
Blower—20 lb.



Hammer

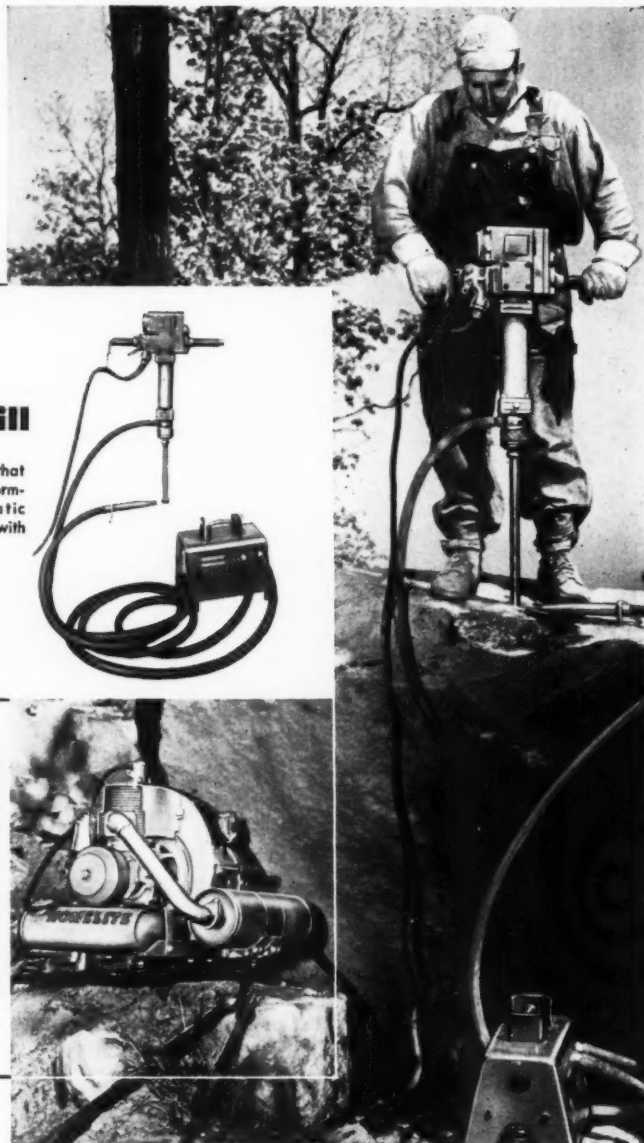
A Lightweight Builders Hammer

FOR:
Chiseling
Chipping
Drilling
Cutting
Same Tool
Drills & Strikes
WEIGHT—14 lb.

HOMELITE Dual Purpose Generator

The power supply for Bosch tools — 2,500 watts — operates both High Cycle tools and Standard 110 volt electric tools and floodlights.

WEIGHT 138 lbs.



These ruggedly built tools are real cost cutters on any job. They combine low initial cost with low operating cost for unexcelled economy.

Lightweight—simple in design, yet they give performance equal to bulky, expensive, compressed air equipment.

HIGH CYCLE electric motors, powered by Homelite's dual purpose generator, will give you greater flexibility and thousands of hours of heavy-duty service. Ask for an on-the-job demonstration or for more information. Write Homelite Corporation, Port Chester, New York.

Manufacturers of Homelite
Carryable Pumps • Generators
Blowers • Chain Saws

PERFORMANCE • DEPENDABILITY
HOMELITE
CORPORATION
SERVICE

208 RIVERDALE AVENUE • PORT CHESTER, N. Y.

Canadian Distributors: Terry Machinery Co., Ltd., Toronto, Montreal, Vancouver, Quebec.



turn *NIGHT* into *DAY*

... at the flick of a switch

Instant, brilliant light to flood the darkest work location makes every night job safe and efficient. That's the kind of utility that a Fairbanks-Morse hand lamp offers you—at the flick of a switch.

What about quality? F-M lamps have sturdy steel weather-proof cases, baked enamel finish. Triple silver-plated reflector for longer lasting reflection. Extra sure battery-to-lamp connections . . . no wires to fuss with or loosen.

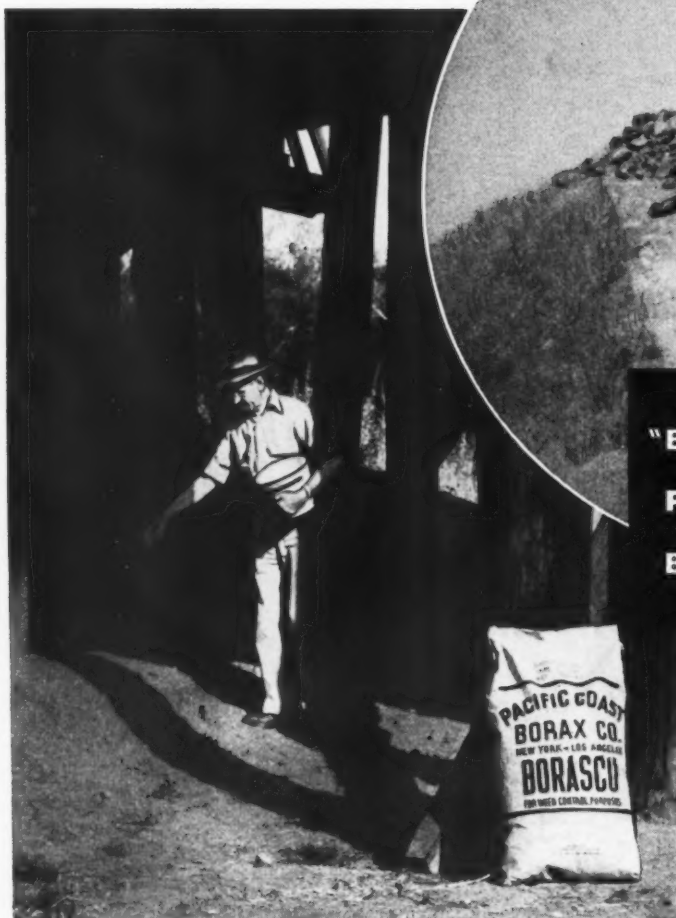
What about price? From single cell to four-cell units, the F-M line of handy portable light units brings you daylight for all night jobs at minimum cost. Write us today for a complete catalog. Fairbanks, Morse & Co., Chicago 5, Illinois.



FAIRBANKS-MORSE

a name worth remembering when you want the best

RAIL CARS AND RAILROAD EQUIPMENT • DIESEL LOCOMOTIVES
AND ENGINES • ELECTRICAL MACHINERY • PUMPS • SCALES
WATER SERVICE EQUIPMENT • HAMMER MILLS • MAGNETOS



**"BORASCU SOLVES THE WEED
PROBLEM ABOUT TIMBER
BRIDGES AND TRESTLES"**

Don't Waste Your Manpower on Weeds!...Switch to

BORASCU
WEED KILLER®

You are looking at a trestle area treated with Borascu Weed Killer about two years earlier . . . *but fire-hazardous vegetation couldn't come back!* Lasting results . . . important savings . . . that's why more than thirty railroads are using Borascu. You can see another reason, too; it is the ease and simplicity of application! Section hands do the work in short order; nothing to mix, no costly hauling of water nor tying up tracks with expensive on-track equipment . . . just a man, a pail and Borascu

applied dry . . . from easily disposable 100-lb. multi-wall paper sacks. Yes, here is an effective low-cost weed killer you may use safely about timber trestles, tie piles, and congested classification yards, with the utmost economy. Borascu is nonflammable, noncorrosive, to ferrous metals, nonpoisonous to livestock . . . yet it is capable of destroying nearly all forms of vegetation! See Borascu kill weeds on *your* road, under *your* conditions . . . ask us to demonstrate without any charge or obligation.



Weed Control Dept. Representatives located in:
CHICAGO • NEW YORK CITY • NEW ORLEANS •
SEATTLE • PORTLAND, ORE. • CLEVELAND, OHIO •
AUBURN, ALA. • KANSAS CITY, MO. • HOUSTON,
TEXAS • FT. WORTH, TEXAS • AMARILLO, TEXAS •
BOZEMAN, MONTANA • MINNEAPOLIS, MINN. •
SAN FRANCISCO, CALIFORNIA

PACIFIC COAST BORAX CO.

DIVISION OF BORAX CONSOLIDATED, LIMITED

630 SHATTO PLACE • LOS ANGELES 5, CALIFORNIA

a new **PAYLOADER®**

**LOOKS
THE
SAME... BUT DOES
MORE
WORK**



Four-wheel-drive • Torque converter • 4-speed, full-reversing transmission • Power-steering • Hydraulic brakes • Quick tip-back bucket • Automatic bucket positioning.

HERE IS THE FINEST tractor-shovel for its size ever built. It has undergone extensive field testing that proves it is without equal in work output, versatility, ruggedness and ease of operation. Its unique combination of torque converter drive and Hough four-speed, full-reversing transmission provides "just-right" speeds, forward and reverse, for every job—plus smooth, shockless power flow at all times.

Your "PAYLOADER" Distributor is eager to explain ALL the advantages of the Model HRC and show what it will do for you.

**MODEL
HRC**

CAPACITY

1 CU. YD. STRUCK-LOAD
1½ CU. YD. PAYLOAD

THE FRANK G. HOUGH CO.
Libertyville, Illinois

Please send me more information on the new HRC

NAME.....

TITLE.....

COMPANY.....

STREET.....

CITY..... STATE.....

- ☐ Please have Distributor call
☐ Send information on all seven PAYLOADER models



PAYLOADER®
THE FRANK G. HOUGH CO. • LIBERTYVILLE, ILL.



751 Sunnyside Ave.

LET
Matisa
DEMONSTRATE
SCIENTIFIC
RAILROADING
*On your
track!*



THE NEW
Matisa
ADZING MACHINE

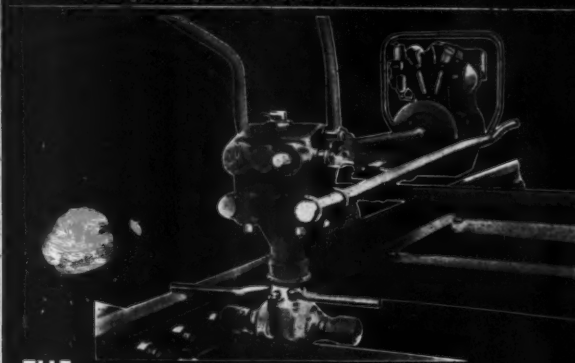
Adze under traffic and under both rails simultaneously without removing rails.

Removes effects of tie-plate cutting. Makes gauging easier, more economical. Extends crosstie life.



THE NEW MODEL
Matisa
TIE RENEWAL MACHINE

Takes old ties out, puts new ones in at half cost — in a fraction of the time — of old style methods. Leaves no rough track behind. Knurled steel rollers move ties in either direction with the flick of a lever, spotting them precisely where wanted.



THE
Matisa
POWER WRENCH

Predetermined, constant torque to equalize bolt tension. Light weight, heavy duty, precision application.

Write us for a demonstration or for literature

Matisa

EQUIPMENT CORPORATION

224 S. MICHIGAN BLVD. • CHICAGO 4

TRACKWORK SPECIALISTS ALL OVER THE WORLD



NEWS NOTES...

AUGUST, 1954

...a resumé of current events throughout the railroad world

The first "Talga"-type train for use on a U. S. railroad has been tentatively scheduled for service on the Rock Island late in 1955. Named the "Jet Rocket", the new low-slung, lightweight, high-speed unit of contemporary European design will be introduced in the road's Chicago-Peoria service, replacing the "Peoria Rocket." As now conceived, the train will consist of four cars with a seating capacity of 300 and will be pulled by a conventional diesel locomotive modified in appearance. ACF Industries, Incorporated will build the coach units.

The Boston & Maine has ordered an additional 55 RDC cars from the Budd Company for delivery beginning next December. This purchase makes the B&M the most extensive user of modern-type, self-propelled, rail-diesel cars.

The first shipment of Labrador iron ore was scheduled to leave the tidewater terminus of the Quebec, North Shore & Labrador at Seven Islands, Que., on July 31, signifying the official opening of the 360-mile line which has been under construction for the past three years.

The Katy has cut one-third off roundtrip coach fares on the more heavily-traveled sections of its Texas lines. Roundtrip fares between Denison and San Antonio through Ft. Worth, Dallas, Waco and Austin are now set up on a basis of 1.5 cents per mile.

A plastic spray, similar to that employed by the armed forces for "mothballing" reserve equipment, is being used by the Rock Island to upgrade box cars. The process, known as "cocooning," is used to cover cracks and holes on the insides of cars, thereby making them grain-tight. The cost of upgrading using the new spray is said to be only a fraction of that of old methods.

Commodities damaged by the Kansas City flood of July 1951 were destroyed by "an act of God," and a plaintiff cannot recover damages for loss, according to a ruling by Judge Patrick F. Stone of the federal district court at Madison, Wis. A carload of dry-cell batteries inundated by the flood was the basis for a damage suit and the subsequent ruling.

Estimated net income of Class I railroads in the first five months of this year was \$166 million as compared to \$338 million in the same period of 1953.

During 1953 the railroads spent an average of \$1.378 for the operation of dining and buffet service for each dollar of revenue received. This figure does not include the cost of transporting dining cars nor overhead cost.

Railroads perform 2.3 times as much service per berth in tourist sleepers as they do per seat in coaches; 2.76 times as much in standard sleepers; and 3.29 times as much in lightweight sleepers, according to recent calculations of the ICC. The commission concludes that the higher railroad fares for transportation in sleeping cars "do not reflect the difference in transportation service performed."

American railroads for the year ending April 30, 1954, earned a rate of return on investment about 40 per cent less than that specified by the Supreme Court as fair for public utilities. The rate of return was only 3.63 per cent compared to the 6 per cent figure set by the high court.

One of the 160 Uses of CONCRETE on Railroads

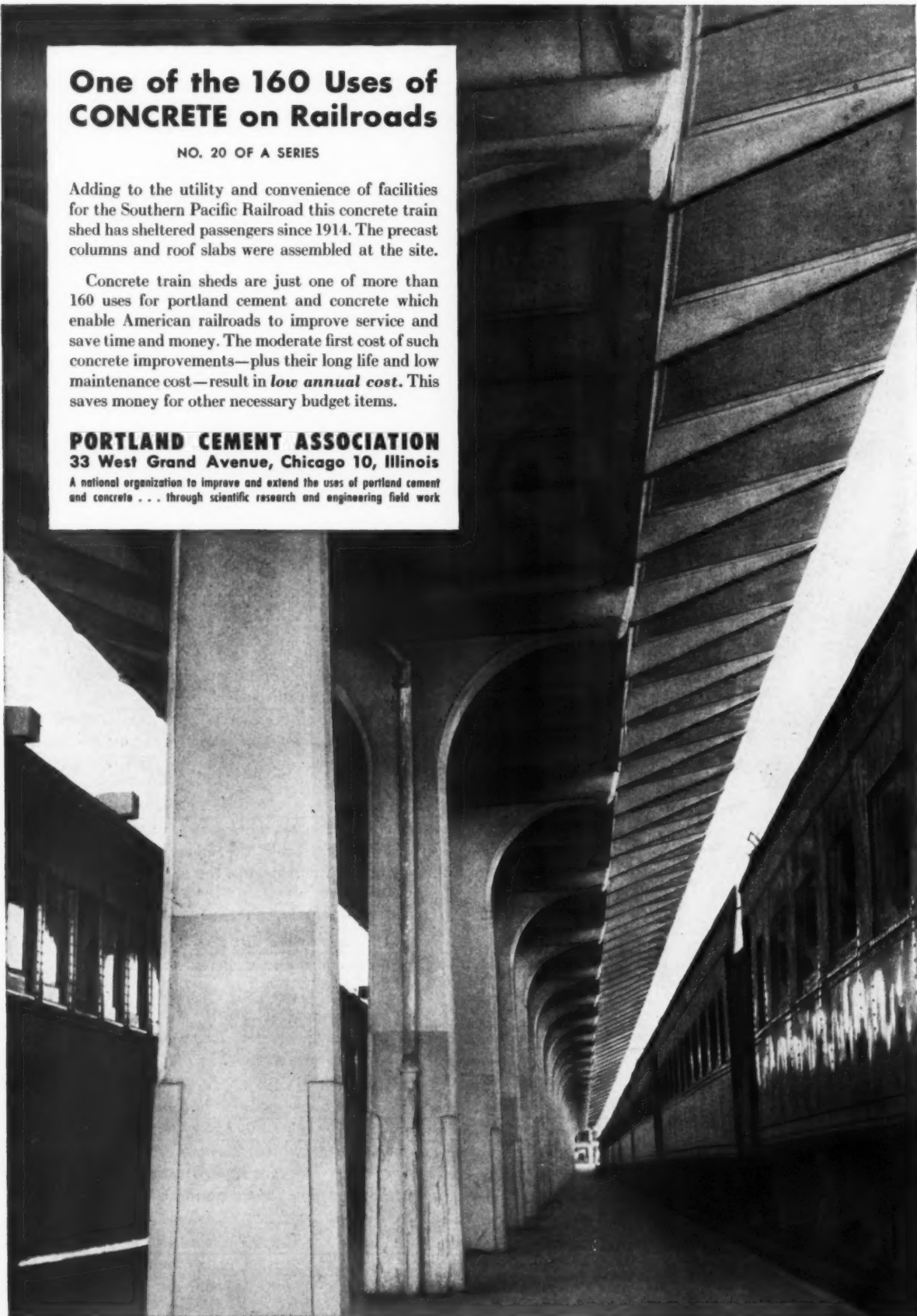
NO. 20 OF A SERIES

Adding to the utility and convenience of facilities for the Southern Pacific Railroad this concrete train shed has sheltered passengers since 1914. The precast columns and roof slabs were assembled at the site.

Concrete train sheds are just one of more than 160 uses for portland cement and concrete which enable American railroads to improve service and save time and money. The moderate first cost of such concrete improvements—plus their long life and low maintenance cost—result in *low annual cost*. This saves money for other necessary budget items.

PORTLAND CEMENT ASSOCIATION 33 West Grand Avenue, Chicago 10, Illinois

A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work





Low cost protection for insulated joints



You are looking at an expensive installation on any right-of-way. The insulation in this joint is costly . . . and when it breaks replacement costs are very expensive.

Burkart Tie Pads, installed on joint and shoulder ties of insulated joints, absorb the shock of impact and materially reduce wear and damage to the insulation. Averaging only 15% to 25% of the cost of insulation, the Burkart Tie Pads shown above are truly low cost protection.

Add this to the extra life these pads give to the ties themselves and you have a typical

example of why M/W engineers specify Burkart Tie Pads wherever track maintenance costs are high.

SEE FOR YOURSELF how rugged Burkart Tie Pads save money at other trouble spots—on bridge ties, switches, curves, even on your straightaways. Send for sample, prices or additional information. If you wish, an experienced Burkart technical representative will gladly consult with you.

All Burkart Tie Pads are coated to provide a permanent seal.

F. BURKART MFG. CO., Railroad Tie Pad Division

DIVISION OF TEXTRON, INC., 4900 NORTH 2ND STREET, ST. LOUIS 7, MO.

THE NORDBERG *POWER* RAIL DRILL...

gives you ALL the features you want...

THE net results of *all* the features of the Nordberg Model CD Rail Drill can be summarized by simply stating that these modern, efficient machines will drill a $1\frac{1}{8}$ inch hole in less than one minute . . . and at savings of up to \$1.80 per hole, as compared to hand drilling methods.

Can you actually *afford* to waste valuable man hours by drilling bolt holes in rail by hand methods? Get further details by writing for Bulletin 204.

- Easily set up. Machine is supported on the rail and not on ties and ballast.
- Weighs only 132 pounds.
- All bearings are of anti-friction type, requiring minimum maintenance.
- Chuck automatically grips flat drill bit and is positively held in drill spindle. No threads to fail or be damaged. No tools required to install drill bit or chuck. Both can be removed by the tap of a hammer.
- Simple adjustment raises or lowers drill bit with reference to top of rail.
- Wide spread of 14" between rail fork and drill permits drilling at heel blocks, switches and guard rails in track.
- High speed crank quickly moves drill up to rail for drilling.
- Ratchet feed handle permits manual control of the feed.
- Ample power provided by $1\frac{3}{4}$ H.P. air cooled gasoline engine with 6 to 1 gear reduction.



USE NORDBERG
"Mechanical Muscles"
TO DO A BETTER,
FASTER MAINTENANCE
JOB AT LOWER COST

Sharpen Rail Drill Bits with
Nordberg Rail Drill Sharpener
Attachment—Write for Bulletin 192.

ADZING MACHINE • BALLAST ROUTER • CRIBEX® • BALLASTEX® • SCREENEX® • HYDRAULIC & MECHANICAL SPIKE PULLERS • SPIKE HAMMER • TIE DRILL • POWER JACK • POWER WRENCH • RAIL DRILL • RAIL GRINDERS • TRACK SHIFTER • DSL YARD CLEANER • TRAKLINER • DUN-RITE GAGING MACHINE • GANDY—TIE PULLER and INSERTER

NORDBERG MFG. CO., Milwaukee, Wis.





The Athey Track Cleaner can clean the full length of the tie. A full-floating feeder handles rocks, debris and ballast with equal ease and with no danger of damage. Rails are protected by tunnels.

SAVE THE WAGES OF 40 MEN EACH DAY

Get out your records on track cleaning. You'll find it took a crew of 8 men and a crane, power shovel or other machine a full day to get a car-load of debris from the tracks.

Now look at these records that Athey Track Cleaners are making. It takes a crew of *one* man at the controls of the HiLoader Track Cleaner just two hours to load the same size hopper car.

That's a saving of 400 man hours each 10 hour day!

Your Athey-Caterpillar Dealer can show you how the Athey Track Cleaner can pay for itself and get *more* work done. Give him a call or write direct.



The 18-foot discharge conveyor of the Track Cleaner can swing 55° to either side of the track, can load into the highest hopper car. Note the clean pickup behind the machine shown above.





Tournatractor crosses tracks without blocking, does no damage to rails or switches. Big, low-pressure tires deflect to move load evenly over obstructions . . . do not chamfer ties, trip or damage block signals.

Tournatractor travels between jobs along right-of-way, cross-country, or over paved highway at speeds to 19 mph. A phone call is all it takes to get this "one-man work crew" in motion.



***RUNS* to maintenance jobs a**



BACKFILLS CULVERTS

This is typical of the jobs that Tournatractor can handle without the help of other equipment. When mainliner barrels through, 186 hp tractor-on-rubber pulls to one side . . . minutes later is working again. No delaying of traffic . . . no moving of work train onto siding . . . no idle track gang.



STOCKPILES COAL

With dozer blade or scraper, 19 mph Tournatractor stockpiles coal, cinders, or ballast. Low-pressure tires compact and seal coal-pile against fire . . . do not grind coal into fines like tracks. Its 4 tires do a better job of compaction than crawler's 550 track parts . . . yet have less maintenance.



CLEARs LANDSLIDES

A minute after emergency occurs, Tournatractor is on the way. Dozing in 2nd gear (3.7 mph) and backing up at 8 mph, Tournatractor makes short work of a rock slide like this. As a result, trains can resume schedules faster . . . tracks are not blocked by work train. No planking is necessary.



PUSH-LOADS SCRAPERS

Teamed with Tournapulls on 800,000-yd. rail spur line in Montana, this Tournatractor pushed 42 loads of sand an hour. Load distance for 9 1/2 cu. yds. averaged 75' . . . load time, 30 seconds. Torque converter enables Tournatractor to match scraper speed for fast, efficient loading.



PULLS HEAVY EQUIPMENT

Skidding heavy compressor is one of many pulling jobs your Tournatractor can handle. 186 hp diesel and 4-wheel drive give plenty of drawbar pull to handle heavy loads. Unit pulls scrapers, tows Rooters, pulls trailers, skids generator plants, poles, ties, assists stalled trucks, etc.



SPOTS RAILROAD CARS

Powerful Tournatractor spots cars in emergencies . . . keeps sidings clear for incoming freight. Instant-shift gear selection keeps unit pushing without losing vital momentum. Unit straddles rails with room to spare. Tournatractor can also assist derailed cars back onto track.

Big b
plus
big c
ing
equip
place

Tourn
wide,
drifts,
wider
shoe
for b



s anywhere in your division



CLEANS UP YARD

Big blade, 186 hp "push", instant gear change, plus 8 mph reverse, enable tractor to outwork any big crawler. Unit generates own electricity for raising and lowering blade, and operating towed equipment. 3-yd. Angledozer can be mounted in place of 2½-yd. Bulldozer.



PLOWS SNOW

Tournatractor V-type snow plow clears path 12'3" wide. Vertical center divider plate cuts frozen drifts, eliminates plowing snow back on road when widening. Big low-pressure tires, adjustable runner-shoe protect plowed surface. Electric-controlled wing for benching is available.

Do your scattered earthmoving jobs faster and cheaper with one man and a rubber-tired Tournatractor!

No need to get a work train ready. No time-consuming loading and unloading of equipment. No waiting for dispatchers and a clear track. Operator just hops on and goes — over tracks, pavement, bridges, along right-of-way, or highway. Averages a mile every 3 or 4 minutes.

Once on a job, Tournatractor gets right to work. When dozing, it delivers 2½ yds. every few seconds. It also pulls equipment speedily, uproots trees, brush, cuts slopes, etc. Because of its greater speeds, it will outwork the biggest crawler-tractor on almost every assignment, 2 or 3 to 1. It has 4-wheel drive, instant gear change with constant-mesh transmission, torque converter, powerful 4-wheel disc-type air brakes, and fast finger-tip electric control. It's easy to operate, handy to maneuver, safe and dependable, needs little maintenance. It gets work done fast without delays to rail traffic. And it goes from job to job in a hurry!

Let us show you just what 19 mph Tournatractor can mean to you in better maintenance for less money!

Tournapull, Angledozer, Rooter—Trademark Reg. U. S. Pat. Off. Tournatractor—Trademark T-643-RR



FREE . . . "The Railroad Handyman"

20-page book shows how 7-yd. self-loading D Tournapull cuts time and costs on right-of-way maintenance. Send coupon for your free copy. No obligation.

Name Title

Railroad

Address

LeTourneau-Westinghouse Company

PEORIA ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

**TO LOWER THE COST OF MAINTAINING
TRACK and ROLLING STOCK...**

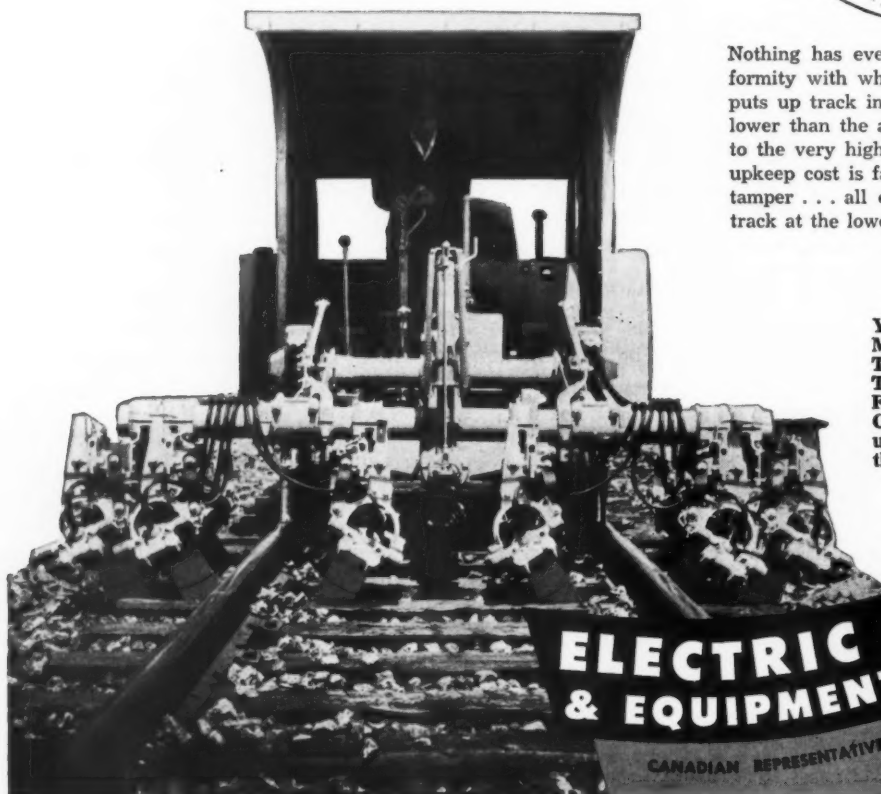
Use JACKSON MULTIPLES

THE **ONLY** ON-TRACK MACHINES THAT TAMP
the **VITAL SPOT**

See how the blades of the JACKSON penetrate and tamp directly beneath the rail, that vital area where greatest weight is imposed. No other on-track tamper is built to do this, and therefore no other can give you the thorough consolidation of ballast at this all-important point and consequent longer-lasting job that the JACKSON achieves. The net result is track that requires considerably less maintenance—that stays smooth even under very heavy high-frequency traffic—that's kind to rolling stock and reduces the cost of maintaining it.



Nothing has ever equalled the speed and uniformity with which the JACKSON MULTIPLE puts up track in any lift from that which is no lower than the average size of the ballast used, to the very highest. Both its initial cost and its upkeep cost is far less than any other on-track tamper... all of which adds up to: "Finest track at the lowest possible cost per mile."



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MULTIPLE ON YOUR OWN
TRACK AND PROVE THIS
TO YOUR ENTIRE SATIS-
FACTION BEFORE PUR-
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us give you
the details.**

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& EQUIPMENT CO.** LUDINGTON, MICHIGAN

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KURON

**NEW DOW PRODUCT REDUCES
VEGETATION CONTROL COSTS
ALONG RAILWAY MAIN LINES**



Effective on many woody plants . . . Kuron is tough even on post oak, black jack and other oak species

Kuron*, a new Dow product offered for the first time this season, is a low-volatile brush killer containing silvex. It is effective as a foliage spray on maples, oaks, locust, cherry, gum, brambles, and certain other species. Many weeds are controlled by the same application.

Dalapon Sodium Salt 78%, another new Dow product, controls grasses positively. A *systemic* grass killer, it is translocated through the plant, effecting a high degree of root kill. Tests show outstanding control of quack grass, Johnson grass, Bermuda grass, para grass, Phragmites, Kentucky and Canada blue grass—as well as annual grasses

including crab and foxtail. Important advantages are its positive systemic effect when applied to grass foliage, its adaptability to variable weather conditions and its lack of hazard to grazing livestock and wildlife. Dalapon Sodium Salt 78% may be used in combination spraying with other Dow weed killers for control of broad-leaved weeds and grasses in roadbeds and on railroad ballast and berm areas. Your supplier will be kept informed on these late developments of Dow research. THE DOW CHEMICAL COMPANY, Agricultural Chemical Sales Department, Midland, Michigan. In Canada: Dow Chemical of Canada, Limited, Toronto, Canada.

*Kuron is the Dow trademark name for its product containing 4 pounds per gallon of silvex.

you can depend on **DOW AGRICULTURAL CHEMICALS**





COMPRESSION ANCHORS Fit All Branch Line Rail Sections

In our book—branch lines are important too! That's why you see COMPRESSION Rail Anchors providing positive, economical holding on many secondary lines as well as main routes. These two-way anchors fit *all* rail sections, whether worn or new.

Above is shown a typical example—COMPRESSION Anchors holding worn 56-lb. rail on a branch line of an important carrier.

Let's Get Down to "Brass Tacks"

This is another in a series of factual, down-to-earth advertisements on rail anchors. Some of these are little known facts; others will bear repeating. They all add up to this; that year in and year out—COMPRESSION ANCHORS are a *better* buy!

The **RAILS** *Company*



Hoboken • Chicago • St. Louis



hoisting load

digging trench

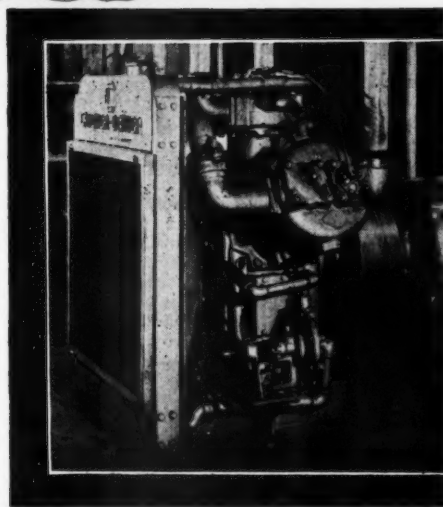


for faster, better maintenance—GARDNER-DENVER!

They're using Gardner-Denver Air Tools—powered by the compact and efficient Gardner-Denver WB Compressor that's so easy to install.



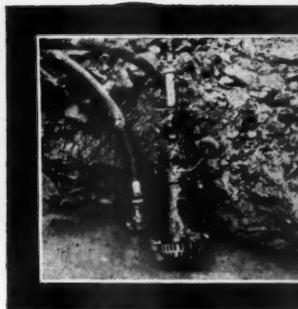
demolishing concrete



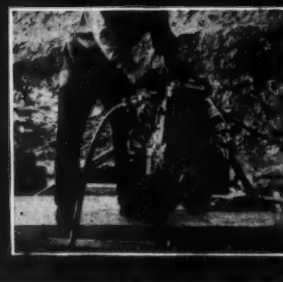
firming backfill



running conduit



draining pond



driving sheeting

SINCE 1859

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THE QUALITY LEADER IN COMPRESSORS, PUMPS AND ROCK DRILLS
FOR CONSTRUCTION, MINING, PETROLEUM AND GENERAL INDUSTRY

Gardner-Denver Company, Quincy, Illinois
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Van-Packer Chimney installed on railroad car repair track building

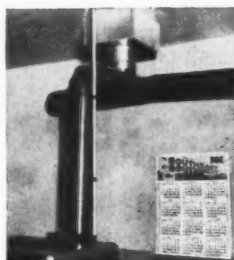
Packaged Masonry Chimney Goes Up in 3 Hours or Less On Railroad Buildings

LOW COST—The Van-Packer Packaged Masonry Chimney is easily installed in 3 man hours or less as new chimney or replacement of smoke jacks on car repair track buildings, maintenance of way buildings, small diesel repair shops, small passenger stations and freight home office buildings. Section-on-section design makes installation a one man job. Never needs to be replaced. Saves 30% to 50% over brick chimney construction.

34% MORE DRAFT—Can be specified wherever 8" x 12" standard code brick chimneys are used. Develops 34% more draft than brick chimneys, cuts fuel bills.

SAVES SPACE—Ceiling suspended Van-Packer can be placed directly over heating unit, no wasted space. Chimney is supported with 4X factor of safety. Fire-safe, no clearance to wood rafters is necessary.

APPROVED FOR ALL FUELS—Time-tested masonry construction withstands temperatures in excess of 2100° F. Sections have insulating value of 24" solid brick wall. Listed by U.L., A.G.A. for all fuels. Delivered packaged and complete, all parts provided.



Triple connection to ceiling suspended chimney inside railroad car repair track building

At right is an exploded view of the Van-Packer Packaged Masonry Safety Chimney. Illustration shows section - on - section construction for ease of installation, even after building has been completed.



Phone, write or mail the coupon below for all the facts on the



Van-Packer

Packaged Masonry Safety Chimney

Brice Hayes Company

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Send me full facts on Van-Packer Chimney for railroad buildings.

FREE LITERATURE

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City
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**10,400 TIES UNLOADED
IN TWO 8-HOUR SHIFTS**



**with a BLAW-KNOX
RAILROAD TIE GRAPPLE**

• With 10 to 12 standard ties per grab, this Blaw-Knox Grapple unloaded 26 gondola cars of 400 ties each in 16 hours! That's the kind of performance your Blaw-Knox Grapple gives you to speed the work, cut tie handling costs and assure maximum crane efficiency.

**ACTUAL JOB REPORTS
SHOW AN AVERAGE OF
8 TIES PER GRAB**

CHECK THESE BLAW-KNOX FEATURES BEFORE YOU BUY ANY GRAPPLE

- Low grapple height (low headroom) permits maximum crane reach.
- Safe operation when handling creosoted ties from high side gondola cars.
- All welded construction permits maximum handling capacity for a crane of given size, without sacrificing strength.
- Efficient design allows deep penetration for a full load.
- Fast, safe crane operation results from firm gripping of the ties.

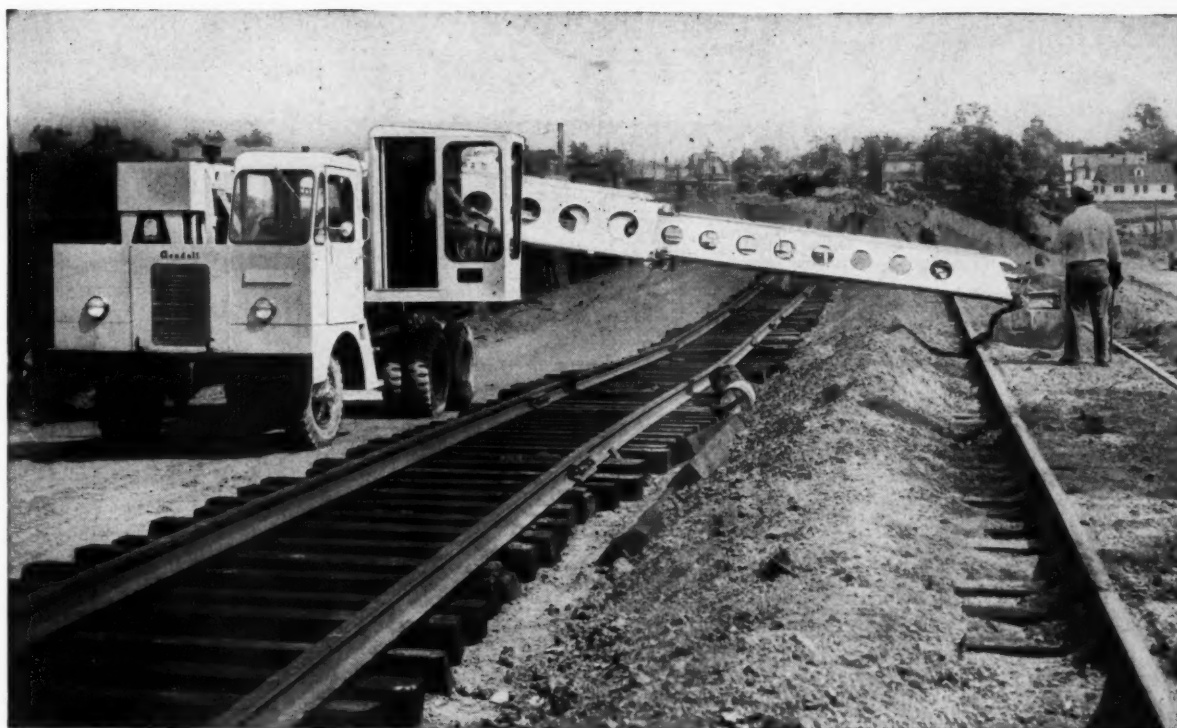
WRITE FOR BULLETIN 2404



BLAW-KNOX COMPANY

BLAW-KNOX EQUIPMENT DIVISION
Dept. 391 PITTSBURGH 38, PA.
Offices in Principal Cities

RAILROAD TIE GRAPPLES



"We've used the GRADALL for more different jobs than any other machine!"

MR. C. H. VOGT, *Chief Engineer*
Maintenance-of-Way Department
CENTRAL RAILROAD OF NEW JERSEY

● "It's the best machine for railroads, along with the bulldozer, that I've ever seen," Mr. Vogt went on to say. "We've lined track, spread asphalt, used it as a crane, plus many other more usual jobs."

Lining sections of track is one example of the many "bonus" jobs Jersey Central handles with the Gradall. Its *arm-action* boom reaches out, hooks the bucket around ties and rail, and pulls the section of track into place. Two men check track alignment at either end. One operator handles the Gradall, equipped with remote control*. The job previously required 15 men!

Jersey Central has also come up with another new job for the Gradall—loading piles of ties. Extra jobs like these

—jobs you can do *in addition* to regular work—really make the Gradall pay off! With a single investment you'll have a machine that does the work of many—a *busy* machine that gives you more on-the-job hours the year 'round.

The Gradall is also available in two other models—the Railroad Gradall (shown at right) for on-track as well as off-track work, and the new crawler-mounted Gradall for use with work trains or in marshy areas.

So before you invest in *any* maintenance or construction machine, contact us for a field demonstration of the multi-purpose Gradall. The Warner & Swasey Company, Gradall Division, Cleveland 3, Ohio.

* Optional equipment



NEW RAILROAD GRADALL—Equipped with track-climbing tires and power steering for on-track as well as off-track maintenance. Works over every mile of track.

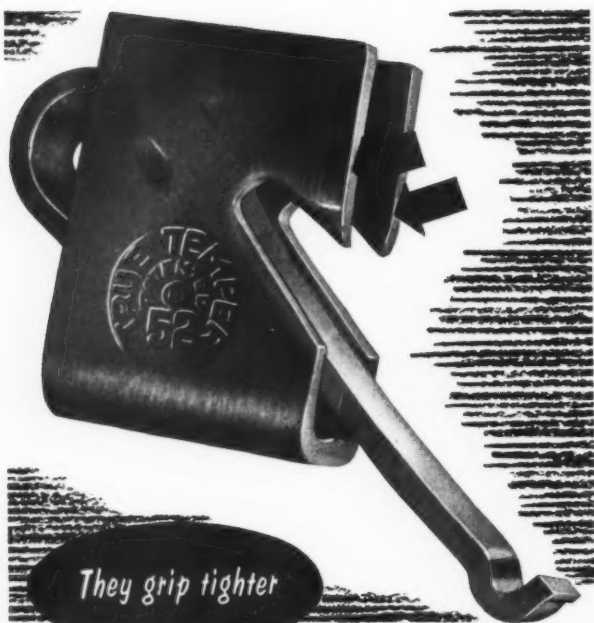
**Gradall Distributors in over 75 principal cities
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RAILWAY TRACK and STRUCTURES

AUGUST, 1954 25



Save money with True Temper double-jawed RAIL ANCHORS

● The most important feature of a rail anchor is its ability to grip the rail so tightly that it cannot slip or creep. One look at the True Temper anchor will show you why it grips more firmly.

Note the double jaws . . . designed to anchor the rail at two points. Note the broad, heavy flange that presents a greater area to butt against the tie. And note how easily it can be positioned for accurate driving.

Consider, too, these extra True Temper features:

- Apply with any standard striking tool
- Not affected by frozen ballast
- Greater protection in case of derailments
- Impossible to overdrive
- Better fit on worn or corroded rails
- Easy and safe to re-install

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Railway Appliance Division • Cleveland, Ohio

TRUE TEMPER RAILWAY TOOLS



"WOLMANIZED"™ ...

clean

pressure-treated

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preferred by

construction crews.

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Wolmanized
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Lumber
 Stops Rot and Termites



MICHIGAN *bucket control means* *"Bigger LoadsFASTER"*

Watch a MICHIGAN Tractor Shovel at work—with particular attention to bucket action—and you'll see how a MICHIGAN* will handle bigger loads, move more yardage—faster, at considerably lower cost.

- *Tremendous break-out power*—ram the cutting edge into any tough, hard-to-dig clay, shale or loose rock—and *work the bucket* to loosen it
- *Bucket roll-back at ground level*—pick up and transport full buckets at low center of gravity for safe traveling, no void space in the bucket; more work in less time
- *Remarkable digging ability*—two large double acting cylinders on bucket and two large double acting cylinders on main lift give excellent control and superior digging action.
- *Good bucket height and reach*—high dumping clearance and ample forward reach make trucks easy to load.

Check these outstanding Quality Features of MICHIGAN* Tractor Shovels . . .

1. **Superior Bucket Action**—bigger loads, faster loading
2. **Clark Power-Shift Transmission**—faster operating cycle gets more yardage
3. **Clark Torque Converter**—3-to-1 torque multiplication; power when needed—no conventional clutch
4. **Clark Planetary Axle**—relieves torque load on shafts and gears, prolongs machine life
5. **Power Steering**—much easier handling, lessens driver fatigue
6. **Gas or Diesel**—right power for the job; more horsepower than any comparable machine

Six models: capacities from 15 cubic feet to 2 1/4 cubic yards. Facts about the MICHIGAN Tractor Shovel are important—and interesting. The MICHIGAN Fact Folio contains specifications and action photos. The coupon gets it for you.

*A Trademark of Clark Equipment Company



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No. 308 of a series

RAILWAY **TRACK and STRUCTURES**

SIMMONS-BOARDMAN PUBLISHING CORPORATION

79 WEST MONROE STREET
CHICAGO 3, ILL.

August 1, 1954

Subject: Summer Complaint

Dear Readers:

"What do you think I am? Twins?" Almost any of us is apt to make this response when we feel that exorbitant demands are being made upon our time. To some extent the statement is applicable to the editorial staff of this magazine at this particular time. To make it possible for us to be in all the places where stories are now available each member of our staff would have to be a great deal more than twins.

We face the same problem every year at this time. The cause of the difficulty lies partly in the fact that, whereas the magazine is published monthly the year around, many maintenance-of-way operations are conducted on a seasonal basis. This means that we have to obtain enough stories during the working season to fill our editorial quotas for the winter months.

Various considerations serve to complicate the problem even further. One of these is the fact that we must "cover" practically all of North America. Even then the task wouldn't be too difficult if the coverage could be arranged on a systematic basis, but the trouble is we have to go where the stories are, and we have to be there when they are happening. For instance, as of today our work list of stories to be obtained shows that developments are taking place at such widely scattered places as San Francisco, Kansas City, Nashville, Cleveland, the Twin Cities, Newark, St. Louis, Chattanooga, Spokane, and points in between.

Then there is the problem of timing. Railway maintenance men have a habit of finishing jobs and going on to something else. If we don't get to see a job while it's going on, we are usually out of luck because then it's too late to get the photographs that are so necessary for illustrative purposes. When you are trying to prepare itineraries for covering a dozen or so projects, all in various stages of completion, and likely as not located at various extremities of the continent, you have a problem of nightmarish proportions, especially if you wish to save time by avoiding backtracking or duplicate travel.

In all fairness to ourselves I should add that this entire problem stems from our practice of giving you on-the-spot coverage of significant developments. If we wanted to make the job easier for ourselves we could doubtless find expedients for doing so, but we are sure the results would not be nearly as interesting or valuable to you.

Yours sincerely,

Merwin H. Dick

Editor

MHD:lw

Members: Audit Bureau of Circulations and Associated Business Publications

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use **OXWELD**
Trade-Mark
REGULATORS

**for dependable control
in oxy-acetylene welding
or cutting**

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"OXWELD" REGULATORS OFFER YOU THESE ADVANTAGES:

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Only tested, high-strength materials are used in construction assuring longer service life.

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Greater than found in any competitive line of regulators.

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Fabric-reinforced rubber diaphragm contributes to excellent regulator sensitivity.

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below to receive an illustrated catalog which gives detailed information and suggested applications for all OXWELD regulators. ▼



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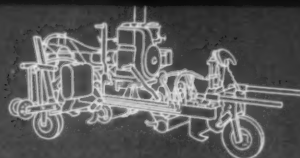
Railroad

Street

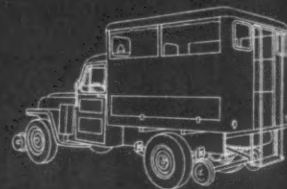
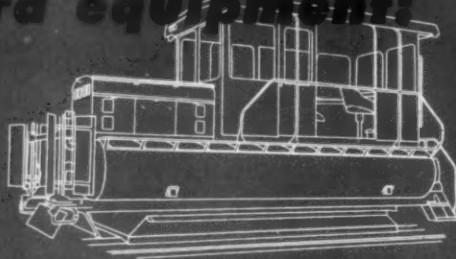
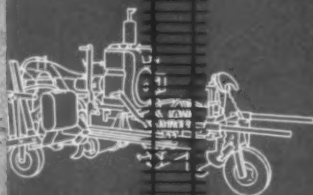
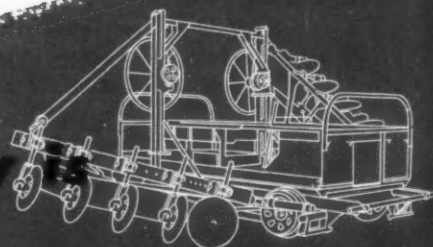
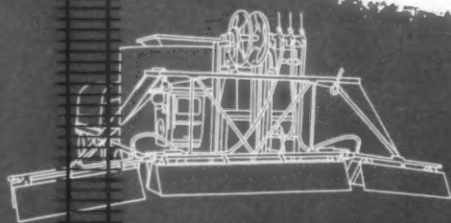
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RAILWAY MOTOR CARS AND WORK EQUIPMENT



**dependability is
standard equipment!**



Fairmont makes available, on almost all of its major products, a wide selection of optional equipment—thereby enabling members of the industry to equip Fairmont products in the manner best-suited to their own individual requirements. But one of the most valuable aspects of any Fairmont product is, in a sense, standard Fairmont equipment. You simply can't buy a Fairmont product without it. We are referring, of course, to that all-important ingredient—dependability! In the case of the Fairmont A5 Series C Gang Car, shown above, this dependability is a matter of proven record. Its unusual longevity and its reputation

for trouble-free service have long made it one of the most reliable cars of its kind. Its efficient 31.5-h.p. engine keeps fuel and operating expense at an absolute minimum, while its ruggedly built body and chassis assure the finest in performance at a remarkably low cost of upkeep. The A5 Series C Gang Car offers four-speed, two-way operation—and can easily pull six trailers, loaded with 120 men, at speeds up to 30 miles per hour. It is products of this unmatched character and dependability that have given Fairmont its unique reputation in the field of railway maintenance—and which make Fairmont your finest source for every maintenance need.

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Lewis, vice-president, 30 Church
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Member of the Associated Busi-
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Engineering Index, Inc.

PRINTED IN U.S.A.

RAILWAY TRACK and STRUCTURES

RAILWAY **TRACK and
STRUCTURES**

TRADEMARK

VOL. 50, NO. 8

AUGUST, 1954

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AUGUST, 1954 31

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Can Unit Costs Be Compared?

Other things being equal, there is nothing quite so important in the maintenance-of-way field as the cost of performing the various jobs. M/W men are always working away at the problem of reducing costs.

If only the performance on a single road is under consideration, it is generally not difficult to tell whether costs of doing particular jobs are going down from year to year. It is a different matter, however, when an effort is made to compare costs on one railroad with those on another. Unit costs of a particular task may be available on both roads, but there is always a question whether they are strictly comparable. This question arises because of variations in the methods used for arriving at unit costs and in the items or factors included in them. Unless uniform practices are followed in estimating unit costs there can be no confidence in making direct comparisons between such costs.

The availability of a uniform system of figuring unit costs for the more common maintenance tasks would have important advantages. The adoption and widespread use of the system would have the effect of bringing to light methods that have proved effective in producing low unit costs, and would thereby help greatly to reduce the time interval between the development of low-cost methods or procedures on one road and their adoption on others. The widespread practice of evaluating methods and procedures on the basis of judgment or observation is hardly adequate in these days of intensive pressure to reduce costs all along the line.

Perhaps the first step would be to determine if, in view of widely varying conditions, it is practicable to develop a uniform system for determining unit costs. If the idea does prove feasible, no time should be lost in getting a project started with that objective in view.

"State of Mechanization"

Recently, while perusing a copy of the Bulletin of the International Railway Congress, we came across, and were intrigued by, the phrase "state of mechanization" as applied to maintenance-of-way work. This phrase was used to describe the ratio between the total horsepower of maintenance-of-way machines, including those machines not in service, and the total number of men on the line. The statement was made that this ratio varied, according to circumstances, between 1.5 and 3 hp per man. These figures were based on a world-wide survey covering conditions in all reporting countries.

In this country, with its high labor rates, the degree of mechanization should be high, and the state of mechanization should be at the upper limit of the ratios given. Unfortunately, the article quoted did not segregate the figures by countries, but it

would be interesting to know this country's rating.

We might extend this study further and ask these questions: Are we getting the maximum use from those machines which we have? How can we tell if we are getting the maximum use from them?

The terms operating ratio and maintenance ratio are familiar to all of us. We would suggest a factor which might be termed "use ratio" and apply it to the operation of maintenance machines. Such a number would be designed to show the relation of actual horsepower-hours to the total horsepower of all maintenance-of-way machines, including those not in service.

It is suggested that such a figure would be of considerable value to a maintenance officer in evaluating the overall performance of the mechanized equipment at his command.

For High Speed Divergent Movements . . .



HIGH-SPEED TRAINS hardly need pause in passing through the equilateral turnouts at ends of Otisville tunnel, now single track.

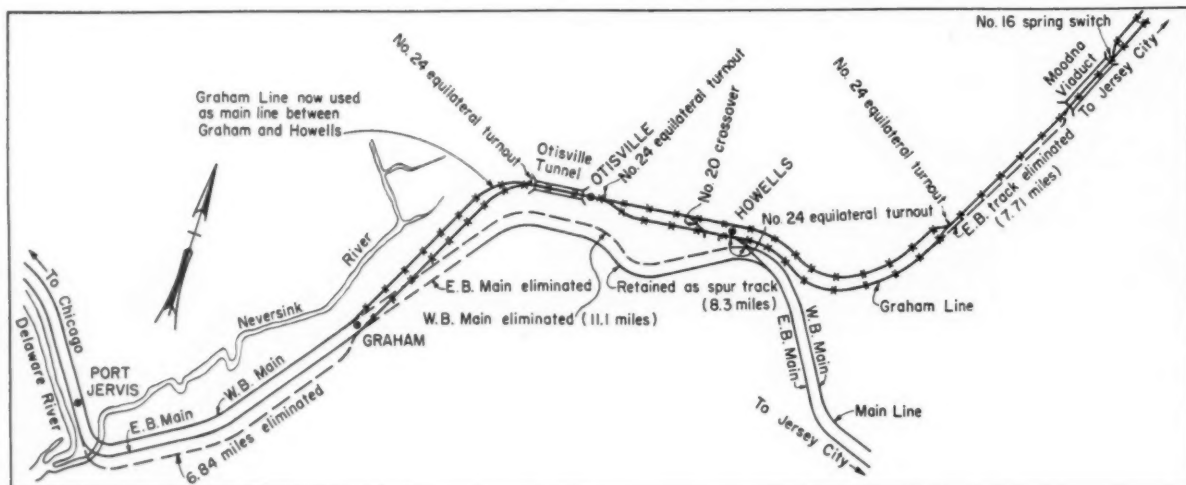
Erie Installs No. 24

The first installation of No. 24 turnouts to be made in this country is now in service on the Erie. There are five turnouts in this installation, all of them equilateral. Three of them are located at points where double track converges into single track. Trains may operate through these turnouts at the maximum allowable speed of 79 mph with comfort to passengers.

● A recent project carried out on the Erie has had the effect of single-tracking a portion of line where the railroad formerly, in effect, had four tracks. And this has been done without sacrifice of train speeds or the capacity to handle traffic. Figuring prominently in this project is the use of equilateral No. 24 turnouts which operated by power switch machines incorporated in a traffic control system, make it possible for fast trains to proceed through the switches at relatively

high speeds, and with complete safety and comfort for passengers.

This project represents the first installation of No. 24 turnouts in this country, although they have been used in France. Using the formula of the American Railway Engineering Association for calculating speeds through curves at a 3-in unbalanced elevation, it is figured that trains with a center of gravity of 84 in above the top of rail may operate through these turnouts at 88.3 mph with comfort



ABANDONMENT of considerable trackage was made possible by the project which involved installation of five No. 24 equilateral turnouts.



SWITCHES of equilateral turnouts have 39-ft curved points, flame-hardened, and are provided with roller bearings and a "helper" connection at the No. 5 rod.

4

Equilateral Turnouts

to passengers. In fact, as a matter of more or less abstract interest, the maximum safe speed through the turnouts is calculated at 119 mph, with no danger of overturning until a speed of 217 mph is reached.

For the present, because of restrictions imposed by adjacent curves, train speeds through the No. 24 turnouts on the Erie are being held to 60 mph. But it is expected that adjustment of the superelevation of curves in the immediate vicinity will make it possible to raise this to 70 mph, and eventually to 75 mph.

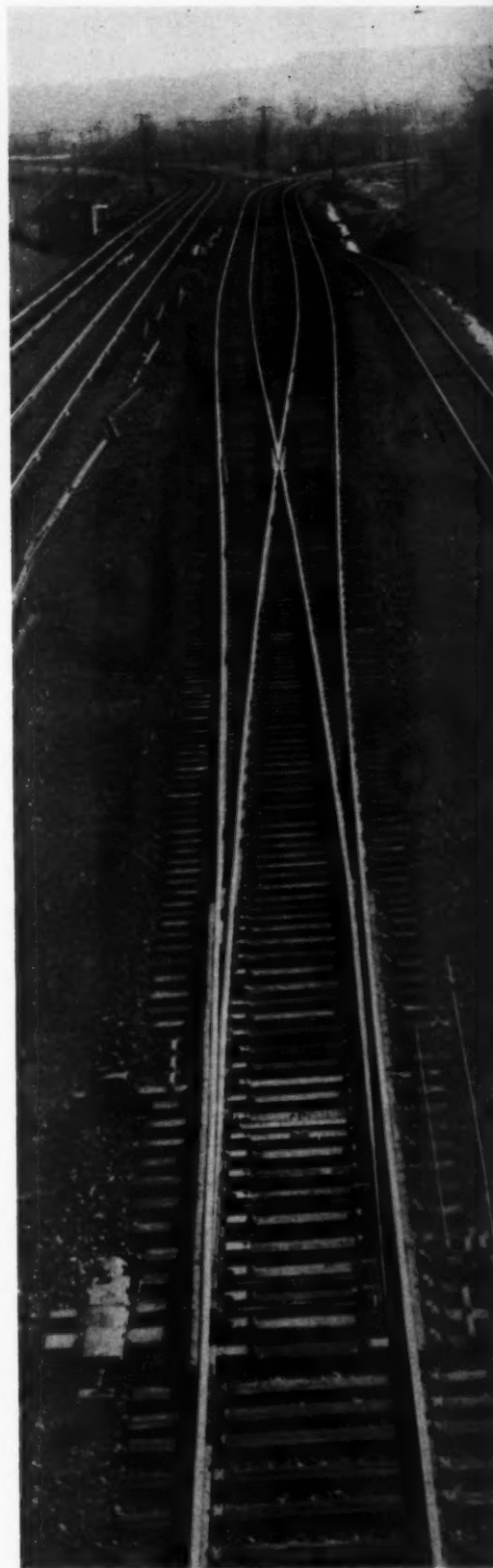
Otisville Tunnel Involved

The locale of the installation is a few miles east of Port Jervis, N.Y., on the Erie's main line between Chicago and Jersey City. The double-track main line in this vicinity, built in 1851, included some heavy grades requiring helper locomotives for pushing freight trains over the Shawangunk mountains. For this reason an alternate double-track low-grade line for handling freight trains, and known as the Graham Line, was built in 1905-08. At its west end the Graham Line connected with the main line eight miles east of Port Jervis, while at its easterly end it joined the main line at Newburgh Junction, N.Y., a distance of 40 miles from the west end.

Near the westerly end of Graham Line is the mile-long Otisville tunnel. This bore, incidentally, is the only main-line tunnel on the Erie. At Howells, N.Y., about 11 miles east of the westerly end of the Graham Line, the latter line swings back close to the main line for a short distance. This situation offered the possibility of joining the two lines at this location, diverting all traffic over one of them west of the connection, and abandoning the comparable section of the other. Since the Graham Line offered more favorable grades and curves, it was logical that the decision should be made to retain this route, abandoning a portion of the original main line.

For some time it had been recognized that, with two tracks passing through it, Otisville tunnel did not offer adequate clearances for future loads. Therefore, as part of the new project, the line was converted to single track through the tunnel, taking up the eastbound main and shifting the westbound main to a position in the center of the bore.

The accompanying map shows the principal elements of this project. One of the old main tracks was taken up for 11.11 miles between Graham and Howells Junction, but a portion (8.3 miles) of the old eastbound main was left in place at the easterly end to serve industries.



LOOKING EAST at Howells showing double-track main line curving to right and Graham Line to the left.



RAILBOUND manganese construction is used for the frogs. The angle is 2 deg 13 min 13 sec and the length is 37 ft.

Also, about 6.84 miles of third main track between Graham and Port Jervis, which served as a passing siding, was removed. Moreover, a section of line west of Moodna viaduct on the Graham Line has been converted to single track by taking up one of the main tracks. East of Moodna viaduct the line remains double track, with the westbound main terminating in a spring switch where it joins the eastbound track.

Five Equilateral Turnouts

The track changes involved in this project created three locations where double-track merges into single track. Equilateral No. 24 turnouts were installed at these three locations, as well as at two other locations at Howells Junction where a connection is made between the main line and the eastbound main of the Graham Line. These turnouts are built with 140-lb material and were furnished by the Ramapo Ajax Division of American Brake Shoe Company. Principal details are shown in the accompanying tabulation. In all the No. 24 turnouts the stock rails are undercut to receive the Sampson switch points, and the points are flame hardened to give them greater durability. At each location, Raco tie pads are used to protect the ties from tie-plate cut-

ting, and rail anchorage is provided by compression clips. The oak switch ties were treated with 6% lb per cu ft of an 80-20 creosote-petroleum mixture.

Electric switch machines are used. In order to be sure that the full length of these long switch points is moved over properly, a second "helper" connection at the No. 5 rod is pipe-connected through cranks to the operating rod. Each switch is provided with roller bearings and heel blocks equipped with thimbles.

The traffic control system extends from Howells Junction to "BC," just east of Port Jervis. Control of this system is centered in the train dispatcher's office at Jersey City, 70 miles away. All of the No. 24 turnouts are incorporated in the system, including the one on the Graham Line where double track converges into single track west of Moodna viaduct.

Two-Direction Signaling

As part of the project, signaling for train movements in both directions was installed on the westbound track between the tunnel and "BC." With this signaling, a fast eastbound train can be authorized to use this either-direction track to run around a slower train on the

eastward track. This also applies to both tracks between the tunnel and Howells.

The power-operated switches in this project are equipped with propane-burning snow melters. These heaters, like the traffic control system as a whole, are controlled from the dispatcher's office at Jersey City, using the same single pair of wires, which, by the coded impulse system, controls the switch machines and the signals. The dispatcher turns on the heaters a half hour before a train movement, as experience on the Erie has demonstrated that this period gives the heaters time to clear the switch regardless of the amount of snow.

This project was carried out under the general direction of B. Blowers, chief engineer of the Erie, and W. S. Storms, signal engineer. The switch machines of the No. 24 turnouts at both ends of Otisville tunnel were furnished by Union Switch & Signal; all other switch machines, as well as the traffic control systems, including the control machine at Jersey City, were provided by the General Railway Signal Company. The switch heaters were furnished by The Rails Company.

Details of Equilateral No. 24 Turnouts As Installed on the Erie

General

Lead length—176 ft 2 1/4 in
Curvature through switch and lead rails—0 deg 35 min
Distance from point switch to point tangent (13-ft track centers)—476.17 ft

Switches

Points 39 ft long (curved)
Angle at point of switch—0 deg 15 min 40.35 sec
Heel spread of switch—6 1/4 in
Points are Sampson design, reinforced 1 1/4 in on gage side; 1/2 in on stock-rail side
Rods—vertical design
No. "0," or front rod—Racor type "MF"
Nos. 1, 2, 3, 4, 5 and 6—Racor type "MJ"
Rail braces—Racor Security Adjustable type (22 per switch)
Heel fillers—5-bolt, cast-steel design

Frogs

Angle—2 deg 13 min 13 sec
Length—37 ft
Heel length—23 ft 9 in
Toe length—13 ft 3 in
Railbound manganese construction in accordance with AREA Plan 600 except heavier side walls
Hook twin tie plates at toe and heel
Tie plates under frog proper—3/4 in by 8 in with welded stops

Guard Rails

Length—19 ft 6 in
Blocks and bolts in accordance with AREA designs
Racor rolled shoulder tie plates



GIRDER SYSTEM was erected in two parts, one on each side of old bridge, on rolling falsework consisting of steel bents mounted on

flanged dollies. After erection, each section was rolled into place and lowered onto its concrete bearings.

In Rebuilding Busy Underpass . . .

Bridge Erected on Rolling Bents

When a highway passing under its tracks at Ft. Worth, Tex., was widened recently the Texas & Pacific was faced with the task of replacing two 33-ft girder spans with two 78-ft deck-plate girder units. The problem was complicated by the fact that the bridge carried four tracks which included five turnouts. How the new spans were erected in two sections, adjacent to the old structures, and rolled into place is described in this article.



SIDE VIEW of superstructure being rolled into position also shows how road-way below is to be widened for new divided highway.

● Rolling steel bents mounted on flanged dollies operating on a track played a major role in the reconstruction of a multiple-track bridge carrying the Texas & Pacific over a highway at Ft. Worth, Tex. These bents not only served as falsework for supporting the new structure while it was being erected in two parts, one on each side of the existing bridge, but also acted as a carriage for moving the two halves of the new structure transversely into final position.

The new underpass consists of two 78-ft by 70-ft ballasted-deck spans comprised of deck-plate girders supported on new concrete abutments and a center pier. This structure carries four tracks, including five turnouts, and replaces two, 33-ft spans which were installed in 1891. The lengthening and rebuilding of the structure became necessary when Boaz street, running beneath the bridge, was chosen as the route for a new expressway having two 60-ft divided pavements.

The underpass is located within the interlocking limits of important interchange connections, making it mandatory that there be a minimum of traffic interruption during the reconstruction work. Since the new structure is more than twice as long as the old one—156 ft as compared to 66 ft—it was necessary, before the new work could be commenced, to construct falsework to support the tracks during construction of the new piers and abutments. The old ballast-deck structure was removed from under one track at a time and the girders and beams from the original bridge were utilized in constructing temporary spans. In addition, it was necessary to drive a total of 260 piling each way from the ends of the old abutments to serve as falsework for the extended portion of the new structure.

The two new abutments and center pier were then constructed under the falsework. The Pumpcrete

As seen from above . . .



EACH HALF of superstructure was completely fabricated alongside the old bridge, including a concrete walkway and railing along

the outside edge. After the steel deck had been waterproofed, ties and rails were laid on the deck. Then the . . .

. . . from below



THREE 1½-ton trucks, one of which is shown here, were used to pull each portion of the span into position.



ROLLING BENT at center pier during shifting of span. Man is checking rate of movement with tape.

method was used for placing the concrete which was allowed to cure for at least 14 days before being subjected to train load. All unexposed portions on the back sides of the abutments and wingwalls, including footing projections, were treated with a Type E waterproofing compound.

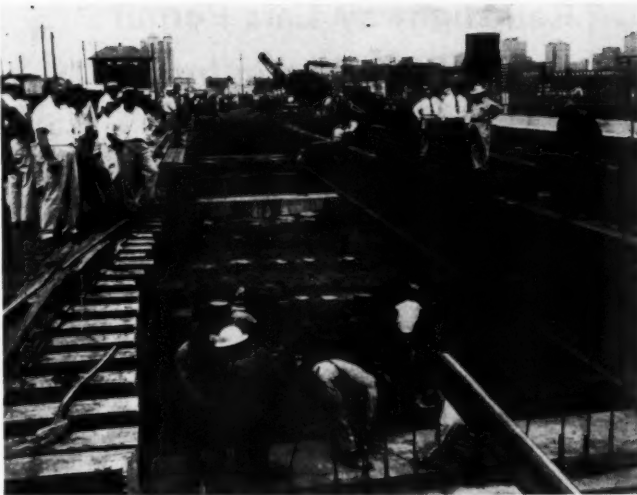
Assembling Girder Spans

The spans for the new structure were shipped to the site in sections consisting of three, 78-ft girders spaced on 3-ft centers. The structure was assembled in two parts divided longitudinally down the center, one-half being assembled alongside the old structure on one side, while later on, the other half was assembled on the opposite side. Each half of the bridge was erected on falsework consisting of three movable bents, one at each end and one at about the center of the structure. The bents were mounted on a track system running

under, and at right angles to the main tracks, and were built of structural sections. Each bent was about 35 ft long and 12 ft high and consisted of two columns supported on a steel grillage which transferred the load through flanged dolly wheels to the track. A pair of hydraulic jacks was placed under each column and on top of the grillage to provide for adjustments in elevation and to keep the span perfectly level throughout the operation.

Each track for the rolling bents was constructed of two rails placed on longitudinal steel stringers. The track ran under the bridge and extended outside the limits of the structure far enough to allow half of the new superstructure to be completely prefabricated alongside.

After the section of the new superstructure had been completely assembled, including the steel-plate deck, a concrete walkway with railing along the outside edge, and waterproofing, track ties and rails were placed on



... **TEMPORARY SPANS** and the tracks were removed from adjacent half of old structure so that new girder unit could be rolled into place.



ADJUSTING switch after placement of span. Track is temporarily cribbed awaiting ballast.



WING WALLS on abutments were constructed later so that they would not interfere with the rolling bent system.



CARRIAGES were equipped with hydraulic jacks as part of the frame system to make adjustments in elevation.

the deck. The tracks were cribbed up to place them at the approximate elevation that they would assume when ballasted.

On the day chosen for placing the first half of the superstructure, the track and falsework members were removed from the adjacent half of the temporary structure with the aid of two locomotive cranes. That portion of the temporary structure carrying the outside track was removed first and the new superstructure was rolled in about 15 ft on its rolling-bent carriage. The temporary structure under the next track was then removed and the new span was pulled all the way in and the jacks released to land the span in its final position. The rolling of the new structure into place was accomplished by a system of continuous cables and sheaves attached to each of the rolling bents and powered by winches on three 1½-ton trucks which were anchored near the bridge.

Placing of the spans was complicated somewhat by

the large number of bearing plates necessary on the new structure. There were 36 plates under the first half of the structure to be installed. In order to be able to land the span with all anchor bolt holes in these plates at the proper position, the plates were attached to the girders with cap screws while the span was being erected. This meant that once the superstructure was in the proper position, it could be landed onto the new masonry with all bearing plates in their correct places.

The other half of the underpass superstructure was rrefabricated in the same manner on the other side of the old structure, and rolled into place about six weeks later. The completed installation required 725 tons of structural steel, 1,500 cu yd of concrete and 200,000 bd-ft of falsework timber.

The project was handled under the general direction of R. J. Gammie, chief engineer of the T&P. A. G. Rankin, bridge engineer, had direct supervision over the work.



HY-RAIL CARS of the type obtained by the New Haven come equipped with enclosed cab and pickup-type body.

Rail-Highway Cars Permit

- *Reduction in track-inspection force,*
- *Lengthening of track-patrol territories, and*
- *Rescheduling of patrolling program, as . . .*

New Haven Modernizes Track Inspection



REAR GUIDE WHEELS are manually retractable. Pins for securing wheels in raised position are accessible through openings in rear of pick-up body.



FRONT AND REAR guide wheels of Fairmont Hy-Rail cars are shown in raised position for highway travel. This is one of the several units equipped with folding-type doors.



REAR-VIEW MIRROR was moved forward to the front fender when new doors were installed.



PICK-UP BODY is equipped with a side door for loading tools and track materials.

● On the New York, New Haven & Hartford 25 Hy-Rail motor cars, capable of traveling either on track or over the highway, have been purchased and put in track-patrol service. An estimated saving of \$120,000 yearly, based on a 7-year car depreciation, is expected of the new cars which are spotted throughout the system to cover the territory formerly patrolled by motor and hand cars and track walkers. An expenditure of some \$130,000 was made in equipping the road with the new type cars, and plans are now being laid to run tests in the near future to determine if, in addition to track-inspection work, the cars are suitable for use as gang cars.

Patrol Territories Lengthened

Through the use of the Hy-Rail cars, which normally carry one driver-operator and a helper, the road has been able to reorganize into fewer and longer units the territories formerly patrolled by track walkers and regular motor inspection cars. In addition, it has been possible to make certain changes in the scheduling of track-inspection work to the extent that, at the present time, all main-line track is patrolled once each regular work day, track which carries fairly frequent traffic is patrolled once every two days, and track which provides only infrequent service is patrolled once every four days.

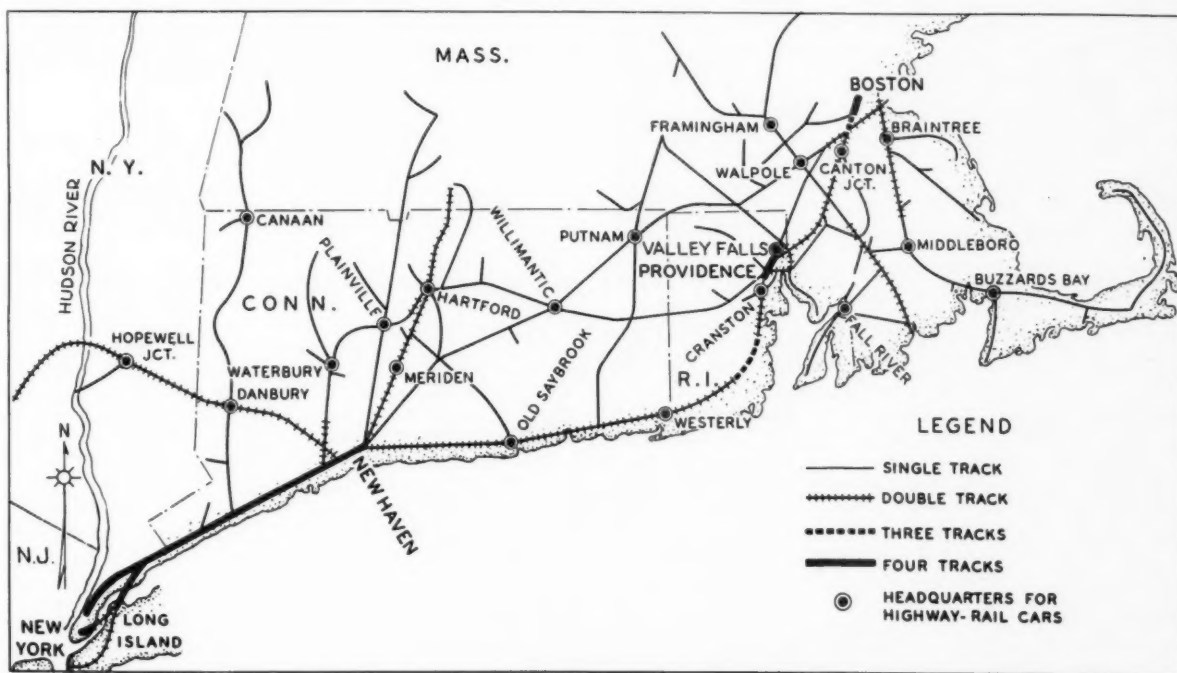
The Hy-Rail cars are capable of traveling over the highway at speeds as high as 60 mph, although their normal highway operating speed is in the neighborhood of 35 or 40 mph. They are limited to a maximum speed of 25 mph on track and considerably lower speeds are employed when patrolling. A hand throttle is located on the steering post for the operator's convenience in maintaining a steady speed while patrolling, thus eliminating the necessity for him to keep his foot on the accelerator pedal.

Purchase of the cars was begun on the New Haven in July 1952 when one car was bought and put into service as an inspection car. The first unit of a new model was purchased in March 1953 and deliveries of this model continued at a steady pace until the twenty-fourth car of this type was received on February 2, 1954. The cars are designed specifically for maintenance-of-way service and, as produced by the manufacturer, come equipped with an enclosed cab and a pickup-type body. The cars are powered by Continental 4-cylinder engines and are equipped with 4-wheel drive, hydraulic brakes, cab heaters, electric windshield wipers, and 7:00 x 15:00, 6-ply puncture-proof tires. They have three-speed transmissions, but there is an additional "super-low" ratio which actually gives them six speeds forward and two in reverse. Each car is equipped with non-load-bearing guide wheels at both front and rear. These wheels are manually retractable. The retraction mechanisms are provided with pin locks and rubber-cushioned spring-loaded safety catches to secure the guide wheels in their raised position. The rated load capacity of the Hy-Rail cars is 1,500 lb.

Three Styles in Use

Three separate styles of Hy-Rail cars are presently in service on the New Haven. Eleven of the cars now in service are as received from the manufacturer. Certain revisions have been made on seven of the cars. The road contracted with an outside concern for the installation of folding-type cab doors on these cars to facilitate entrance and exit to and from the cab. It is planned eventually to equip all the cars with such doors. When the folding doors were installed the glass area per door was reduced (see illustrations), necessitating the repositioning of the rear-view mirror from the doorpost to the front left fender.

To date, seven of the Hy-Rail cars have been



RAIL-HIGHWAY cars used for track-patrol work on the New Haven are headquartered as shown on this map.



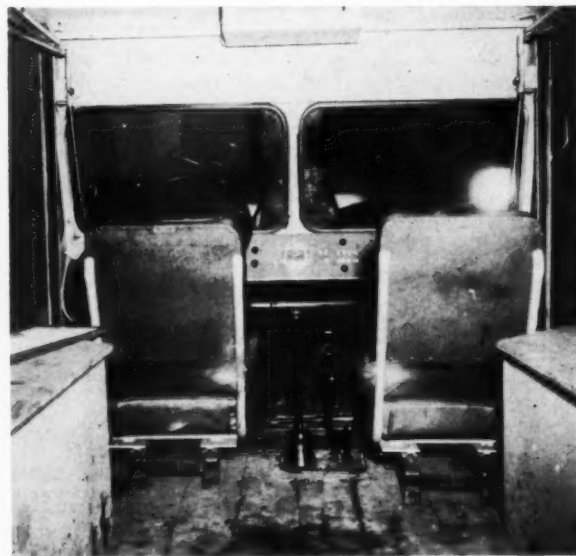
HIGHWAY OPERATION allows cars to avoid congested terminal trackage.



OPEN BACK and bench-toolboxes are featured in the panel model which the road plans to test as gang cars.



MOTOR is located immediately ahead of cab; reached via hinged cowling shown here.



"FRONT OFFICE" of the Hy-Rail car. Choice of three forward and one reverse speeds are available to the operator.

equipped with special panel-type bodies. This work was done under contract on chassis purchased by the railroad without bodies from the manufacturer. The panel-type bodies are open in the rear thus permitting rear loading—a feature not available on the pickup type cars where the access door is located on the side. It is with these panel-bodied cars that the New Haven plans to make its tests to determine the advisability of using the cars as gang vehicles.

Several of the cars have been equipped with removable snowplows, mounted on the front of the guide-wheel frame.

As can be seen on the accompanying map, the cars are headquartered in such a manner that a minimum of time is spent in getting to and from areas to be patrolled. Of the 25 Hy-Rail cars in service, two are main-

tained as extra cars for use whenever regular service cars are shopped.

Maintenance and servicing of the Hy-Rail fleet is done at the New Haven's regional maintenance shops at Reedville, Mass., Torrington, Conn., Providence, R. I., New London, Conn., Hartford, New Haven and Danbury—in a manner similar to the road's highway truck-maintenance program. Maintenance of the cars is under the direction of J. W. Mangan, superintendent of work equipment.

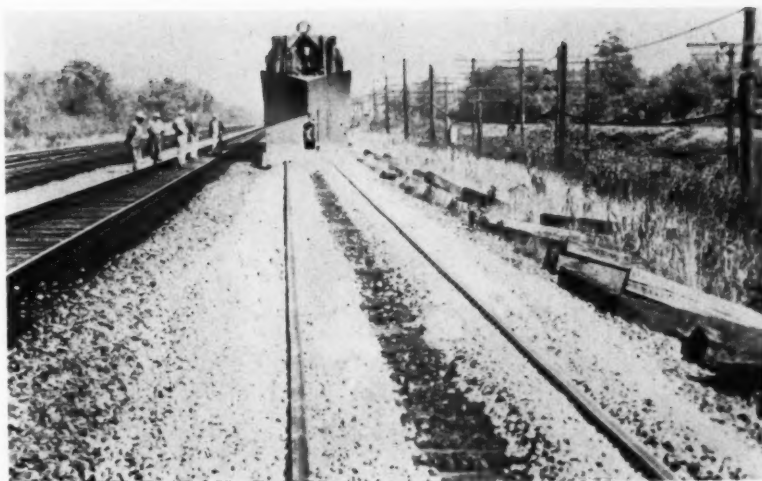
The idea of using these cars on the New Haven was conceived in 1951 and the program was developed under the direction of the road's engineering department where operation of the cars is presently under the supervision of T. P. Polson, chief engineer, and W. H. Haggerty, roadmaster.

● In preparation for surfacing the outside freight track on the Erie division of the New York Central, ballast in the form of crushed stone or slag was unloaded at the rate of 12 to 15 cars per mile. Selective-type ballast cars were not available in sufficient quantities to meet requirements for the operation, and it was necessary to use hopper cars for distributing the ballast. Stone unloading boards made in the Central shops were used to control the dump. However, the outside freight track was lower than its adjacent passenger track, and in unloading it was necessary to dump more ballast than was desirable in the space between the tracks in order to provide enough ballast, overall, for track raising.

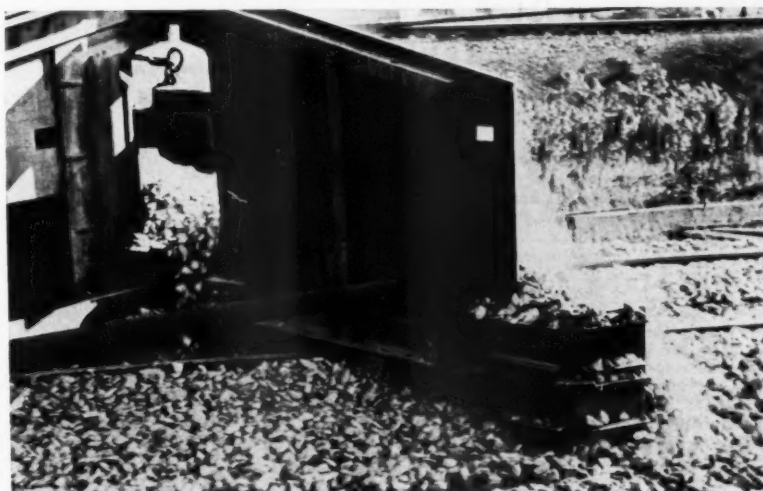
It was felt that this uneven ballast distribution would cause track raising crews considerable difficulty in that it would be necessary for them to transfer ballast from one side to the other while attempting to raise, thus hampering their operations. To assure good distribution ahead of the raising, local forces devised a method whereby a Jordan Type "A" Spreader could be used to transfer the excess stone from the intertrack space to the outside shoulder.

This was accomplished by swinging one side of the front center plow forward so that it lined up with the other side, thus giving an angled blade on the front of the machine. A longer brace for holding the wing forward was installed and a scoop-type attachment of flat steel reinforced with channel iron and bent to an angular position, was then attached to the end of the plow wing on the intertrack side. This scoop was designed to gather the surplus ballast from between the tracks and bring it into position where the angled plow blade could carry the ballast across the track to where it was needed. At the same time, the ballast between the rails and on the ends of the ties was leveled off uniformly to any depth desired by simply raising or lowering the plow.

The spreader was used for distributing ballast on more than 150 miles of the outside track ahead of surfacing operations, and the Central reports that use of the machine was quite successful. General supervision of this work was under C. C. Herrick, division engineer, M. A. Dolcie, supervisor track, was directly in charge. We are indebted to J. L. Cox, assistant engineer maintenance of way, for the information used in this article.



Problem: Ballast Too Heavy Between Tracks



Solution: Plow Angled on Jordan Spreader



Results: Better Distribution for Surfacing



ATMOSPHERE in the old station was not unlike that of many other old depots around the country which, although quite the thing in their day, do not come up to present-day standards.

In the original layout of the station, there were two waiting rooms connected by a corridor which was formed by a recessed entryway (at left) on one side and the ticket office (left center) on the other. This situation tended to give the rooms a small, cooped-up appearance. Inside the entryway, a door on each side provided entrance to each of the waiting rooms from the street side of the building. The floors of the waiting rooms were covered with a black-and-white design of ceramic mosaic tile, and the walls were brick which had been painted. The plaster ceilings were high, arched affairs, and lighting was provided by hanging fixtures. A circular-type radiator was located in the center of each waiting room and provided heat for the entire area. The ticket window, located between the two waiting rooms, was constructed of wood finished in a dark brown. The window was covered with steel bars which gave one the impression of looking into a cage. All of the wood trim and entrance doors were finished in dark brown, thus giving the rooms a dark appearance.

Inside of Old Station...

AS MODERNIZED the interior bears very little resemblance to that of a few months ago, and gives the appearance of being part of an entirely new, modern building.

The area of the recessed street-side entryway was reduced so as to convert the two waiting rooms into one large room. Actually, the increase in the area is only about 90 sq ft, but gives the impression that the interior is a great deal larger than before. A single entrance doorway with double doors and fluted glass sidelights was installed to replace the separate entrances to each room. A new drop ceiling was constructed and covered with ceiling tile over a Sheetrock backing. Recessed fluorescent fixtures mounted flush with the new ceiling were installed. The old brick walls were covered with a quarry tile wainscot to a height of 6 ft 10 in, and the remaining upper portion of the walls was finished with ivory colored Marlite on Sheetrock. The old tile floors were sanded down and covered with Terraflex tile. Around the perimeter of the waiting room a 4-in black cove base was applied. Three new benches were installed and the old benches relocated to provide for a 7-in space behind and at the top to accommodate heating grilles for new convector-type radiators.



... Now Looks Like New

By B. J. Minetti
Engineer Structures
Central of New Jersey
Jersey City, N. J.

The eastbound passenger station of the Central of New Jersey at Elizabeth, N. J., recently underwent a series of extensive interior alterations and exterior repairs which have converted the antiquated structure into an attractive, up-to-date building.

● Upon entering the Central of New Jersey's east-bound passenger station at Elizabeth, N. J., a few months ago, railroad patrons were confronted with an atmosphere typical of old station buildings—that of bygone days. Today, however, after extensive alterations, the interior gives the impression of being part of a new, modern building.

The building, as originally laid out, had a ticket office situated in the center along the track-side wall and a recessed entryway on the opposite side. The space between the entryway and the ticket office served as a corridor connecting two waiting rooms. From the entry-

TICKET COUNTER is of modern design with a single large window.

The wall area between the floor and the top of the counter is recessed, and a rack is provided here on which a patron may rest his luggage while he is at the window. The fact that the wall is recessed makes it possible for a patron to stand comfortably at the counter without having to lean over, and also permits the luggage rack to be mounted back out of the way. The recess is finished with aluminum Zourlite, and the counter top is covered with Formica with aluminum stripping around the edges. The counter is built to accommodate two agents at the single window which may be shut off when the office is closed by means of a Zourlite draw shade that moves up and down in vertical slides. The window is flanked on both sides by fluted glass sidelights. On the inside, a work counter is situated below and behind the main counter. Below the main counter an individual ticket compartment for each agent is built in. Each compartment may be closed and locked when an agent is absent from his station.



way a door opened into each of the waiting rooms. At one end of the building a baggage room was located on the track side and the women's room on the street side. The men's room and a foyer were located at the other end of the building. A bay window area at the corner of the track side-wall and the end wall, and forming part of the foyer, was leased by the Union News Company for a news stand.

On the exterior, the station is of brick and cut-stone construction with wood trim. In the center of the structure is a clock tower of spire-type architecture. The tower is also of masonry construction with wood trim.

Interior Remodeled

Some of the more extensive alterations made to the building took place in the waiting room area. These are described in the text accompanying the "before and after" illustrations presented on these pages.

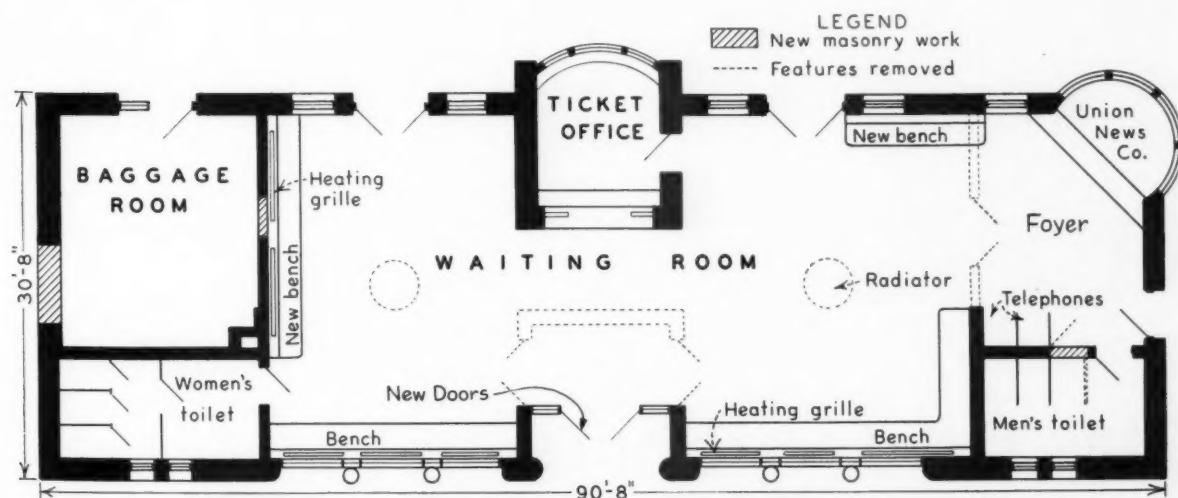
In addition to the remodeling work carried out in the waiting rooms, the ticket office was remodeled. The ceiling, walls and floor were altered and redecorated in the same manner as those in the waiting room. A new ticket counter was installed which is described in the

text adjoining a photograph on this page showing the new installation.

Extensive alterations were also made in the men's toilet and the foyer area. The wall which separated the foyer from the waiting room was removed and the old foyer area made a part of the waiting room. Also the Union News Company remodeled its news stand to make it harmonize with the other interior renovations.

In the men's room a new floor of unglazed ceramic tile, in a basket weave pattern of light and dark green, was installed to replace the old mosaic-tile floor. The ceiling was lowered in the same manner as that used in the waiting rooms and ticket office, and glazed ceramic wall tile, mounted on a prepared surface of wire lath and cement plaster, was used to make a wainscot extending 5 ft 10 in above the floor. Above the wainscoting a Marlite wall like that used in the waiting room was applied. The plumbing fixtures were also modernized as necessary.

At the other end of the building the women's rest room was redecorated, new flush-type entrance doors were installed and the ceiling lowered. The baggage room was also altered and repaired to complete the in-



PLAN OF BUILDING illustrates how walls of the old entryway and men's foyer were removed. Steel beams, running from the inside corners of the wall of the new entryway to the inside

corners of the ticket office wall, were installed to support roof trusses which were formerly supported at the corners of the old entryway walls.

When taking up and loading ties . . .



OPERATING on the old second-track roadbed the Speed Swing roots out salvageable ties and then . . .



. . . LOADS the ties directly into gondola cars. Note modification of fork to prevent wedging and spilling of ties.

● When the North Western decided to start work on a three-year program of converting its double-track main line between Evansville, Wis., and Elroy, to single track, studies disclosed that the usual methods of salvaging track ties would be extremely expensive. To mechanize this operation for the purpose of reducing the cost, the railroad purchased a Speed Swing from the Pettibone Mulliken Corporation. Using the machine with a four-man crew including the machine operator, production equivalent to that of a 40-man gang equipped with a crane was secured. This mechanized operation is estimated to have produced a saving of approximately 90 per cent in labor expense.

The trackage removed consisted of 100-lb rail, fully tie-plated and supported by treated hardwood ties laid in gravel ballast. Using conventional methods, the rail and track fastenings were removed and salvaged by company forces.

Track Ties Salvageable

Inspection disclosed that in excess of 75 per cent of the track ties were in good condition, suitable for installation as usable ties in secondary-main, branch-line and side tracks. To take advantage of this remaining service life it was decided to salvage these ties. The use of hand methods for lifting the ties and assembling them for loading by crane would have proved too expensive. For this reason a search for a machine which would mechanize the entire lifting and loading operation was initiated.

The Speed Swing was selected. It consists of a heavy chassis, mounted on four large pneumatic tires, supporting a hydraulically operated, jack-knife shaped boom equipped with a fork. The boom can be swung through 180 deg and tilted upward to an angle 30 deg above the horizontal. It has a static load capacity of 6,000 lb and a dumping height of 9 ft 8 in. This is sufficient to clear the edge of a low-side gondola. Mobility and maneuverability are provided through a 4-wheel drive and by 4-wheel hydraulic steering.

This Off-Track Machine . . .

● *Salvages Ties*

● *Lays Rail*

● *Handles Materials*

After the machine had been in service for a time on the tie-loading job, a number of changes were made in the lifting fork to increase its adaptability for this specialized function. For one thing curved bars of metal were welded into the corners between the tines and the heel of the fork to prevent ties from becoming wedged at this location. Also, two other bars were welded, finger fashion, to the upper edge of the heel to prevent ties from spilling over backward when elevated for loading into cars.

Production Maintained, Costs Down

After these modifications had been completed, the machine was operated over the roadbed of the old second track, rooting out the ties and loading them directly into gondola cars of a work train operating on the retained track. At an average rate of 60 sec a forkfull, the machine was able to salvage and load 450 ties—about $1\frac{1}{2}$ carloads—per hour. With 4 to 5 hr of on-track loading time available, 7 cars per day were loaded.

Poor Ties Discarded

During the loading operation, two men with bars were stationed in the cars to straighten any skewed ties and level the load. One man, on the ground preceded the machine and removed any reject ties from the roadbed to prevent their being loaded with the good ones. Reject ties were piled and burned or given to local farmers who hauled them away without expense to the railway company.

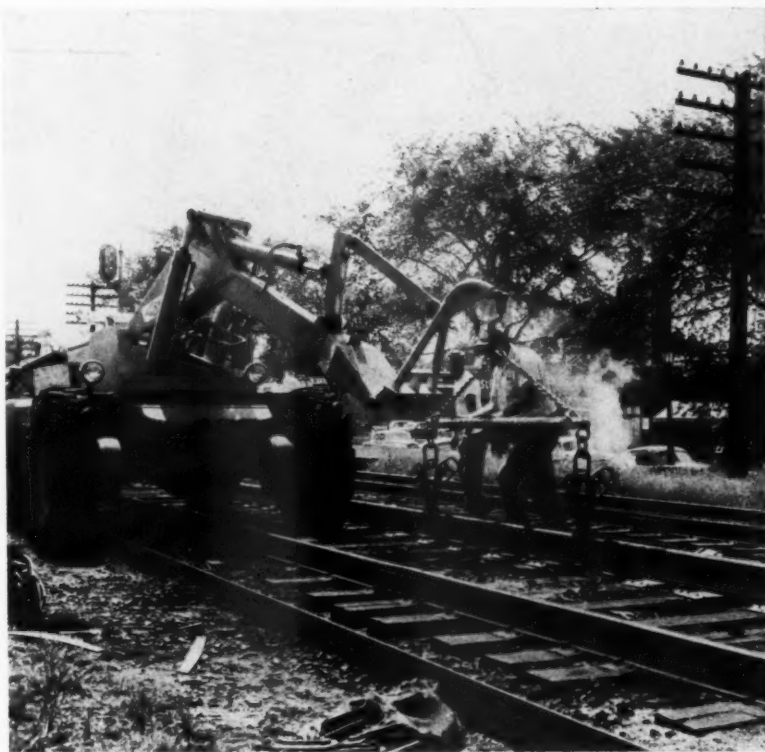
At about the time the tie-loading work was drawing to a close, the North Western started a rail-renewal project on its passenger line at Wilmette, Ill. This high-speed, double-track line carries a heavy volume of suburban traffic and a large number of through trains. The track at this location was available for work during the period between the close of the morning rush hour and the opening of the evening rush period. Even during the period between rush hours the work had to be carried out under traffic. As a result the net on-track working time was only two to three hours per day.

A total of 3.7 track-miles of rail was relaid on each of the two tracks. The new rail, of 115-lb section, pressure-welded into 78-ft

When laying long rails . . .



WELDED RAILS in 78-ft and 117-ft lengths were lifted and positioned by machine. Large tires aid the machine in clearing tracks quickly.



SPEED SWING equipped with "tote hook." Lifting arrangement consists of spreader bar carrying anti-slip rail tongs.

When handling loose materials . . .



ONE-YARD BUCKET attachment adapts machine for grading work at signal locations or for loading debris in yards.



SNOW HANDLING around depot platforms and yard tracks, on another railroad, is expedited with a four-yard bucket.

and 117-ft lengths, replaced the existing 110-lb rail.

As originally organized the rail gang consisted of 35 men. A large amount of the work had to be done by hand because the train fre-

quency was such as to void any saving normally to be expected from the use of heavy on-track equipment. Production under this arrangement averaged 2.41 ft per man-hour.

It was suggested that the Speed Swing, if used on this job, might possibly speed up the work. Accordingly the machine was temporarily diverted from the tie-salvage work to the rail-laying operation. To adapt the equipment for its new role, the fork was replaced with a "tote hook," and a 10-ft spreader bar equipped with two sets of anti-slip rail tongs was suspended from this hook on a bridle chain. With this arrangement either a 78-ft or a 117-ft rail length could be easily picked up, carried and set into place.

When it was necessary to clear the track for traffic the Speed Swing could be removed on its own wheels without the need of a prepared set-off. Using the tote hook, the other rail-laying machinery was also set off with facility. This mobility made it economically possible to increase the size of the rail gang to 45 men and to effectively use additional machinery. As a result a production of 3.36 ft per man-hour was achieved, an increase of approximately 39 per cent.

Used for Grading and Loading

In addition to these jobs, the machine, equipped with a one-yard bucket, was used to place the fill and shoulder around the foundations of signal masts which were relocated in connection with the single-tracking operations described above. The unit has also been used effectively to load debris and snow into cars and trucks in the road's yards at Madison, Wis., and Milwaukee.

As a result of its experience with the Speed Swing, the North Western has purchased an additional unit.

An organization plan is now being developed around this machine for use in relaying rail under traffic in single-track territory. The use of this machine for such work will eliminate the necessity for train crews which are now required when heavy on-track equipment is used.

All of the work described in this article has been carried out under the general direction of L. R. Lamport, chief engineer-maintenance of the North Western, Chicago. The tie-salvaging operation was under the direct supervision of R. D. Culbertson, division engineer, and O. M. Olson, roadmaster, Madison, Wis. J. L. Perrier, division engineer, and E. A. White, roadmaster, both of Chicago, had direct charge of the rail-renewal work.



FREIGHTHOUSE of the Wabash at East St. Louis, Ill., used exclusively by a forwarding company, has recently been expanded and enlarged. The work consisted in part of the addition of a second transfer platform and the installation of a Towveyor system serving the two platforms. In this view a loaded platform trailer has been attached to the Towveyor chain through slot in floor. Project also included construction of a modern office building.

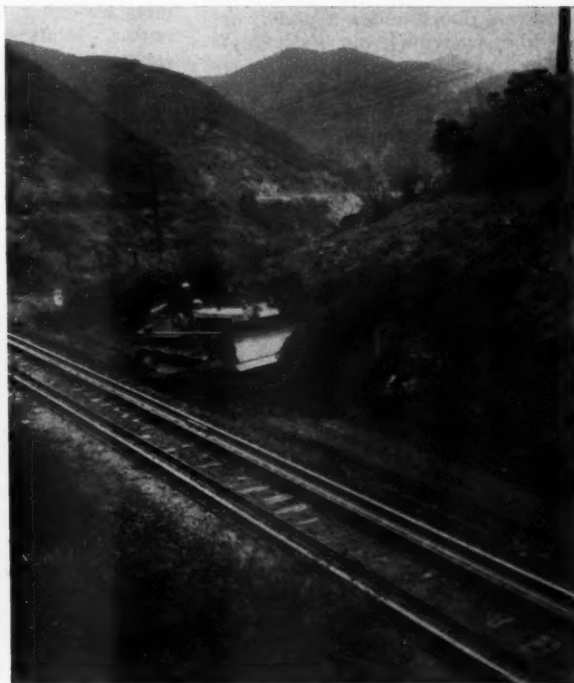


WAITING ROOM of new Milwaukee passenger station at Tacoma, Wash., features a club-like atmosphere. Use of large window areas, attractive interior finishing materials and furnishings, as well as an unusual type of ticket office surmounted by a gold-tone photomural all enhance the appearance of the room. The new building is located away from the traffic congestion in the heart of the city, yet is easily accessible to the downtown area via two main boulevards.

News Briefs in Pictures...



OFF-TRACK grading equipment is playing an important role in maintenance of good drainage on the Southern Pacific's Coast division. In the view at the left a Caterpillar D6 tractor equipped with a bulldozer blade is shown as it completes a "pass" through a narrow cut which is being widened and cleaned out.



At the right the tractor is being used for cutting down the side of a bank to prevent slides and promote better drainage. The machines are also being employed to pull trees, grub out stumps and perform a variety of other maintenance tasks along the right of way.



WHAT'S THE ANSWER? ...

... a forum on track, bridge, building and water service problems

Replacing Broken Glass Blocks

What is the most practical method of replacing glass blocks that have been broken? Explain.

"Butter In" Replacement Block

By J. C. BRENNAN
Division Engineer, Delaware & Hudson,
Oneonta, N. Y.

This has not been too much of a problem with us as, except in those rare cases where a panel has been struck with a vehicle or tool, we have had no occasions where glass blocks have been broken. Where these instances have occurred, and a single block has been broken, we have repaired the panel by knocking out the broken block, chipping out the mortar bed and "buttering in" a replacement block. When changes require replacement of a portion of a glass block by reason of the installation of ventilating windows, doors under a panel, or the like, we knock out individual blocks and place saddles to support the upper portion of the panel and hold it intact. The lower portion of the panel is then removed and re-laid, after which the saddles are removed and blocks are "battered in" to fill the openings. The width and height of the panel governs the number and location of the saddles needed for support of that portion of the panel above the area to be re-laid.

We have not had to do much of this work, but have found that the above method works out very well.

Clear Opening Carefully

By L. B. CURTIS
Architect, Northern Pacific,
St. Paul, Minn.

When a glass block is broken to the extent that it must be replaced, the remaining portions of the block must be very carefully removed from the opening. It has generally been found necessary to break the remnants into small pieces to prevent injury to the adjacent blocks.

After the broken block has been

entirely removed, the old mortar around the opening should be carefully chiseled away. When doing this, wall ties, where they exist, should not be cut and the blows used must not be severe enough to damage the surrounding blocks.

Following the thorough cleaning of the opening, a new mortar bed is laid, using a rather stiff mix, and mortar is also placed on the sides of the opening. A liberal amount of mortar should also be placed on the top and sides of the new glass block and it should then be forced into the opening. Precautions must be taken to insure that the block is properly centered and care exercised to be certain that all side joints are completely filled with the mortar. Joints should be struck smoothly before the final set of the mortar, surplus mortar removed from the face of the block and its face wiped dry.

Where a broken block is set in a deep wall recess, it may be necessary to remove an adjoining block to replace the broken one properly.

Recessed Blocks More Difficult

By W. G. HARDING
Architect, Wabash, St. Louis, Mo.

If the glass block is not on the perimeter of a panel, it is a very simple matter to replace it. The two faces are first broken out and the remainder of the glass around the edge of the block is then carefully chipped away with as much of the adjacent mortar as possible, care being taken not to damage the mortar between the adjacent glass blocks. A matching block is then "battered" with mortar and slipped into place.

If the broken block is in a corner, or on an edge or the top of a panel, where it is recessed into a chase or channel, it is a little more difficult to replace. In this case it may be necessary to break out several blocks either to the side, above, or below the broken block to permit working

Answers to the following questions are solicited from readers. They should be addressed to the What's the Answer editor, Railway Track and Structures, 79 W. Monroe St., Chicago 3, and reach him at least five (5) weeks in advance of the publication date (the first of the month) of the issue in which they are to appear. An honorarium will be given for each published answer on the basis of its substance and length. Answers will appear with or without the name and title of the author, as may be requested. The editor will also welcome any questions which you may wish to have discussed.

To Be Answered In the November Issue

1. The AREA specifications for laying rail provide: "Standard metal, fiber or wood shims shall be placed between the ends of adjacent rails to insure proper space for expansion. . . . Where shims are used they shall be removed to within 12 rails of the laying." What, if any, advantage results from the removal of fiber or wood shims as specified? Explain.

2. Under what conditions is it desirable to insulate the walls of a building that is to be air conditioned? Explain.

3. To what extent does the speed of trains contribute to the amount of joint-bar maintenance required? Explain.

4. To what extent are supersonic devices adaptable for determining the soundness of mass masonry structures such as bridge piers and abutments? Can they be used in place of core borings? Explain.

5. What, if any, effect does the operation of diesel power have on the location and use of spring frogs? Explain.

6. Under what conditions, if any, is it desirable to heat diesel fuel oil in cold weather to reduce pumping difficulties? What methods may be used? Explain.

the replacement block into position. The procedure for the removal of adjacent blocks is the same.

If a sound block must be broken

to permit replacement of a broken block, care should first be taken to crack one face. This will permit air to enter the partial vacuum in the

interior of the block prior to breaking it. Goggles should be used when removing glass blocks to prevent eye injury from flying glass.

Anchoring Fuel-Oil Tanks

What are the most effective methods for the anchoring of fuel-oil tanks to prevent their being floated away during floods? Explain.

Complete Anchorage Expensive

By R. A. VAN NESS
Bridge Engineer System,
Atchison, Topeka & Santa Fe, Chicago

The majority of the fuel-oil storage tanks on the Santa Fe are 30 ft high and 115 ft in diameter. Those tanks with a steel top have a dead weight of about 217 tons. An empty tank would therefore require about an 8-ft depth of water for flotation.

Flotation of the tank can be overcome either by dead weight of the tank plus the weight of its liquid contents, or by anchoring the tank to a concrete slab by means of economically spaced anchor bolts, concrete encased in holes drilled in the slab.

An 118-ft diameter concrete slab would require 405 cu yd of concrete per foot of depth and about an equal amount of excavation. At \$40

per cu yd for excavation and concrete, the cost of the slab per foot of depth would be \$16,200. It would require a depth of concrete of about 12 ft to protect a 30-ft by 115-ft empty tank against maximum flotation. This would cost about \$194,400. Protection against a 12-ft height of water would require a concrete slab 4.7-ft deep which would cost \$76,140.

A 30-ft by 115-ft tank, at \$300 per ton in place would cost \$65,100, and if it were placed on a crushed rock foundation the total cost would be about \$68,000. If it were decided to anchor the tank, the cost of the regular tank would be increased to about \$72,000 which would cover the cost of providing seal plates and anchor bolts, in place, and welding for watertightness.

Very unusual circumstances would obviously have to exist to

warrant the anchoring of a 30-ft by 115-ft tank when weighed against the cost of preparations to resist flotation by the removal of manhole covers in the case of an empty tank, or the pumping of oil or water into a partially full tank.

The Santa Fe had three 30-ft by 115-ft fuel-oil tanks in the Kansas City flood of 1951. Water crested about 29.5 ft above the bottom of these tanks.

Two of the oil tanks contained 29.3 ft of black oil, while there was 26 ft of diesel oil in the third tank. This third tank was moved off its foundation, presumably helped by the current which was stronger against this tank than it was against the other two, until it was stopped by its surrounding dike.

We consider that there is sufficient available protection against flotation of these Kansas City tanks because, at a time when the oil supply is low, the quantity of liquid in the tanks can be supplemented by water supplied from fire hoses connected to the fire lines protecting the tanks.

Slow Order Protection for Ballasting

To what extent should ballasting operations be protected by slow order? If required, how long should slow orders remain in effect? Explain.

Depends on Particular Job

By W. E. CORNELL
Engineer of Track, New York, Chicago &
St. Louis, Cleveland, Ohio

Except in a very few cases, slow orders should be used to protect ballasting or other out-of-face surfacing work. There are many conditions to be considered in determining the amount of the slow order protection required. The rate of the restriction and the duration of the slow order will, to some degree, be affected by atmospheric temperature, maximum speed of trains, joint conditions (room for expansion), grade and alignment, height of raise, and kind, size and gradation of ballast, distinguishing particularly between crushed materials and washed gravel which does not contain a fairly large percentage of broken pieces.

When working jointed track, one of the first and most important things to consider in any out-of-face surfacing or ballast-renewal job is expansion. It is essential to see that bolts in all joints are loosened to permit free movement of the rail in the joints through the extent of the day's work and preferably a few joints beyond. It is necessary to protect the track in this manner against hot-weather buckling. This procedure will also eliminate the kinking and cocking of joints and facilitate the work.

Expansion and free movement of rail in the joints are fundamental and, when properly provided, will make most of the other conditions requiring slow order protection special to the particular job. Normally when crushed ballast of fair gradation is used, it is only necessary to

see that the track has a good top with full cribs and to provide protection for the passing of a few trains before full-speed operation is permitted. If washed gravel, with a low percentage of crushed materials is used, and temperatures are high, or subject to wide variation, it is necessary that the slow-order period be extended until a reasonable amount of settlement and stabilization of the track has taken place.

When surfacing continuous welded rail, the temperature becomes of paramount importance and, if near the upper limit when the welded track is worked, the amount of open track should be restricted.

While Unsafe for Normal Speed

By F. H. MCKENNEY
Engineer of Track, Chicago, Burlington &
Quincy, Chicago

Rules require that slow orders be placed whenever the track conditions are unsafe for normal speed. The amount of the ballast raise and

the equipment used, together with characteristics of the line, such as grade and curvature, should be considered when determining what slow order is necessary. When working track in curve territory a slow order may be required to provide for the safety of the men in clearing the track. On straight track, where the raise is less than two inches, ballasting operations are frequently carried out without slow orders, but for the higher raises, where the track is disturbed to a greater extent, it is customary to place slow orders not exceeding 15 mph, or even less if necessary.

Slow orders remain in effect only as long as the track condition is considered unsafe for normal speed. It is frequently found necessary to leave skeletonized track over night on which speed is restricted to 25 mph or less. Where the track is fully filled in at the close of the day

and surfacing has been completed with a run-off suitable for full speed, the slow order may be removed. This is frequently done in important high-speed territory but it requires a considerable amount of extra work to provide the long run-off and keep track properly filled in. Where full speed is not required the run-off may be shorter and the track ahead may be partially prepared for the following day's ballast operation. In these cases we usually carry a slow order of not over 25 mph, and less if necessary.

Safety of Prime Importance

By GEORGE S. CRITES
Division Engineer (Retired),
Baltimore & Ohio, Baltimore, Md.

Whenever track conditions in connection with ballasting operations are such that the maximum

speed of trains can not be safely maintained, slow orders must be issued and proper flag protection provided.

Train operating rules provide that trains will be run in either direction, on any track, whenever necessary or expedient. Ballasting operations which obstruct these train speeds must be properly protected at all times, unless the work is on a track or tracks which are definitely out of service.

When tracks are taken out of service or slow orders are issued to facilitate ballast operation, action should be taken to restore normal operating conditions economically and with the minimum interference to traffic.

Safety is always the prime consideration and, regardless of expediency, no shortcuts should be taken which would in any way jeopardize traffic or persons.

Maintenance of M/W Work Equipment

To what extent should roadmasters and bridge and building supervisors be held responsible for the proper maintenance of M/W work equipment used by forces under their supervision? Explain.

Make Supervisors Responsible

By H. S. ASHLEY
Assistant Engineer Maintenance of Way,
Boston & Maine, Boston, Mass.

It is very important that roadmasters and bridge and building supervisors be familiar with the work equipment used by forces under their supervision. Small mechanical tools, such as saws, boring machines, etc., generally assigned to bridge and building crews, should be inspected by supervisors at frequent intervals to make sure that foremen are keeping these tools in proper condition and ready for use at all times. One may otherwise discover that crews are working with hand tools because of some unreported mechanical difficulties.

While inspection and instruction in the use of M/W work equipment rest with the supervisor of work equipment, his forces usually cannot be spread thin enough to inspect all machinery regularly. This is where the roadmaster and bridge and building supervisor can assist by making sure that competent men are selected for machine operators, and by insisting they see that their machines are properly lubricated and cared for at all times.

Machines which are assigned from a pool under the direction of the supervisor of work equipment are generally inspected by his forces, and operators are instructed before putting the machines in use. However, after initial instruction has been given, it is the roadmasters job to follow up these instructions and see that they are being carried out properly.

In the interest of good workmanship and full production from these machines, the roadmaster and bridge and building supervisor should definitely be held responsible for the proper operation and maintenance of M/W work equipment, calling on the work equipment division for inspection and repair when required.

Responsibility Shared

By R. B. CHAPMAN
General Superintendent M/W Shops & Equipment, Southern Pacific,
San Francisco, Cal.

It is believed that the roadmasters and bridge and building supervisors should be equally responsible with the division supervisor of work equipment for the maintenance of

equipment in use on their districts. The operators are directly under their jurisdiction and when temporary men are used they are often selected by the local supervisors.

Operators contribute to the success or failure of all types of machines and are often responsible for the amount of maintenance necessary to keep them in operation. Operators are expected to keep machines clean, make minor repairs, keep machines in adjustment and report any irregularities that need the attention of a skilled mechanic who makes periodic calls wherever machinery is in use.

If operators are deprived of sufficient time to perform these duties their machines soon deteriorate to the point of failure. Extended use of machines in need of shop repairs often results in excessive and extensive damage which could have been avoided had they been released from field duty when recommended by the work-equipment supervisor.

Using the wrong type of machine or one that is too light for the work at hand contributes to excessive maintenance. Supplies and repair parts of all kinds that are ordered by the operators, through their immediate superiors, are often deferred due to either restricted allowances or the possibility of reassignment of the machine to another district.

All of these items contribute to lack of maintenance.

Since these factors are largely the responsibility of the roadmasters or

the bridge and building supervisor, with their full co-operation, the efforts of the division work equipment supervisor and his mechanics will give better maintenance.

Implied Responsibility

By H. C. KOCH
Roadmaster, Belt Railway of Chicago,
Chicago

Roadmasters and B&B supervisors are responsible for many things and they automatically assume a certain amount of responsibility in seeing that work equipment is properly maintained and operated when assigned to their department.

They are primarily interested in the efficient and safe operation of this equipment. When new equipment is assigned to the maintenance-of-way department, it is their duty to find out all that they can about it, and in this connection, the manufacturers should be given a great deal of credit for cooperating with the supervisors and for furnishing experienced instructors and service men when necessary.

The degree to which roadmasters and B&B supervisors are responsible for maintaining work equipment will differ with the various railroads. In some cases, equipment is maintained by other departments; and in other cases the maintenance-of-way department itself has a separate subdepartment, organized to inspect and maintain the equipment and instruct operators. If the foreman or supervisor of the subdepartment reports to the roadmaster or B&B supervisor, these officials then have the top responsibility for maintaining the equipment. The assigning of efficient foremen, mechanics, etc., to this work would then be part of their job.

Regardless of who actually maintains the equipment, roadmasters and B&B supervisors can help considerably in keeping it in good working condition by assigning good men to operate the machines. These men should have some knowledge of the machines. This can be gained by proper instruction, perhaps by assisting the mechanics in maintaining their machines. With training, the conscientious operator will know when the machine requires oiling, greasing and other necessary routine attention. An efficiently instructed operator will also know whether or not the machine is being worked beyond its capacity, or overloaded. In the past, failure to provide effi-

cient operators has been the cause of much needless wear and tear on the equipment. This at times has resulted in a large expense for repair of the machines.

With the help or advice of the foreman in charge of repairing work equipment, or his mechanics, supervisors can pick out the best men available to operate machines. In this way, while they may not be regarded as directly responsible for the maintenance of work equipment, they will have contributed considerably toward keeping the machines in good operating condition.

Must be Maintenance Conscious

By A. W. MUNT
Supervisor Work Equipment,
Canadian Pacific, Toronto, Ont.

I believe that roadmasters and B&B masters should be held responsible for the maintenance of work equipment under their supervision to the extent that they insist that the forces using their equipment operate it satisfactorily and to its rated capacity. It is sometimes found that a machine is used for work that is too heavy for the unit to handle, resulting in frequent breakdowns and costly repairs. The first responsibility should of course rest with the operator of the machine but sometimes he is overruled by a roadmaster or B&B master who, being anxious to get the work done, directs that the operation be tried out regardless of conditions that make the machine incapable of doing the work satisfactorily.

Lubrication and light operating maintenance should be the responsibility of the machine operator, but roadmasters and B&B masters should check with those in charge of the actual work to see that the operator is qualified to carry out this work and is given sufficient time to do it at regular intervals.

Work-equipment inspectors and supervisors when making field inspections of work equipment should keep roadmasters and B&B masters advised of any conditions found which indicate that an operator is not maintaining his machine satisfactorily. It should then be their responsibility to see that the necessary steps are taken with those concerned to remedy these conditions.

Roadmasters and B&B masters should be imbued with the thought that proper maintenance of machines on the job will result in con-

tinuity of operation and maximum productive effort at the lowest possible cost.

Roadmaster's Obligation

By JAMES H. BROWN
Roadmaster, St. Louis-San Francisco,
Chaffee, Mo.

The general procedure for buying, allocating, and periodic inspection and repairs to power work equipment on most railroads is under the direct supervision of a general work-equipment supervisor, who handles the entire system. Knowing his overall responsibility and the distances separating the various units, his forces cannot be expected to direct work equipment maintenance as thoroughly as may be required. New developments and improvements being made in all types of power equipment, which have been brought about by changes in maintenance methods and requirements, add to the roadmaster's responsibility to keep abreast of the times.

In cases other than break down, or completion of the expected service life of a machine prior to a general overhaul, the roadmaster by necessity must assume the task of seeing that equipment is serviced properly and maintained in good operating condition. The roadmaster many times is the "bug-catcher" i.e., from his observations of a unit under various operating conditions he discovers practical changes in application as well as design which, if passed on to the manufacturer, may produce future models more adaptable to the particular railroads maintenance operations.

After accepting the above as desirable practice, the following procedure should be set up.

(1) The roadmaster should acquaint himself thoroughly with each machine. When possible he should learn to operate it. He should know its capacity and be acquainted with its service manual.

(2) The roadmaster should choose an operator, when the machine is to be used with a gang in regular maintenance work. This operator should be one who is interested and understands the service life to be expected from the unit, its maintenance and service schedule, the value of the unit from the standpoint of the investment made, and the need for the machine to work to its best advantage all of the time.

(3) The above should be supplemented by weekly reports, made

out by the operator, showing the general condition of his unit and including an order for any parts needed. When practical, the operator should submit daily reports of the work accomplished, such as participation in an out-of-face job. This permits the roadmaster to determine unit costs and make comparisons with other methods.

The rule of "good housekeeping" requires daily tightening, surface cleaning and prevention of unnecessary abuse. This will produce the desired results from the use of power work equipment.

After a program of the above type has been established by the roadmaster, profit and results will be apparent in many ways, such as:

- (1) Increased output per unit.
- (2) Increase in the general pride of all concerned with respect to improvements made on the railroad.
- (3) The roadmaster's superiors will express their satisfaction by allocating more power work equipment to his territory, thus enabling him to make greater maintenance progress.

"Good Housekeeping" on Steel Bridges

To what extent does "good housekeeping" in connection with steel bridges affect their maintenance requirements? Explain.

Reduces Corrosion Damage

BY PETER R. CICCILLI
Supervisor of Bridges & Buildings,
Central Railroad of New Jersey,
Jersey City, N. J.

"Good housekeeping" to a great degree does affect the maintenance requirements on steel bridges.

Inspection of steel structures which show an accumulation of debris (be it cinders, ballast, or silt falling from behind the backwalls, etc.) especially around bridge seats, indicates an accelerated deterioration of the metals. Gusset plates of the lateral and sway bracing systems, where silt has accumulated, also show excessive corrosion of the metals.

Bridge structures located where the wind action has a sweeping effect and keeps debris from accumulating on the piers show steel in better condition than the same type of structure where material has accumulated on the piers, especially if very little effort has been made to remove it.

Where air lines remain in operation at bridge sites, it is not difficult to assemble a combined forced air and water-pressure system, thus creating a method for the rapid and thorough removal of the debris. When track men are in charge of good housekeeping along the right of way, the same function on steel structures should be brought under their supervision.

Fire hazard to the bridge ties and damage to the steel structure itself are greatly reduced by keeping a bridge free of debris.

In certain areas, where it is not feasible to practice good housekeeping, it has been found that the placing of the lower members of a bridge structure above an assumed height of accumulated debris on the piers, is an effective preventive measure and reduces corrosion.

Good housekeeping is desirable practice on all bridge structures where an accumulation of deleterious materials may occur. Where such practice is not practicable it would be advantageous, especially on the fixed ends of structures, to encase all steel pedestals in reinforced concrete, and give all movable pedestals several coats of asphaltic-base paints to retard any action brought about by the accumulation of corrosive materials.

Cannot Over-Emphasize Importance

BY E. J. NAPIER
Bridge Engineer, Central Region,
Canadian National, Toronto, Ont.

In the writer's opinion the importance of "good housekeeping" with respect to steel bridges can hardly be over-emphasized. The accumulation of dirt and debris on bridge seats results in rapid and extensive corrosion of steel pier members. Quite frequently expansion pier members will be rendered inoperative, particularly those of poor design. Since free movement of the span or spans is thus prevented, horizontal thrusts of considerable magnitude will be produced from the effects of temperature changes and the superimposed live loads of trains. One of the most serious aspects of this condition, especially in the case of long spans, is the distinct possibility of overstress in some members. Of course, if the force produced is great enough it may cause some movement of the pier members, which will reduce these stresses.

We have to consider the fact that stress reversal can also occur in various members, and in the case of eye-bar tension members, which are

incapable of taking compression, the redistribution of stresses in the span due to reversal becomes, to put it mildly, rather difficult to compute.

One of the major factors in the deterioration of stone masonry piers and abutments, especially of the upper courses, is the direct result of inefficient expansion-pier members. If this inefficiency is due to corrosion from the accumulation of dirt on the bridge seats, it is, to say the least, good economics to pay a small price for good housekeeping. The cost of regular removal of this debris, when compared with the much larger cost of restoring the substructure, is indeed small. To illustrate, the writer would like to mention a specific case. A few years ago the Canadian National repaired a number of high masonry stone piers supporting long through-truss spans of a certain bridge. This work was completed during the winter months, the last operation consisted of completely solidifying, by means of pressure grouting, the upper portion of the rubble-cored shafts of the piers. On the first warm day the following spring, large reports similar to thunder (they were so described) were heard. Upon investigation it was disclosed that the fixed end (not the expansion end) of each span had moved about 1½ in. longitudinally, as evidenced by bare and polished steel on the upper surface of the bed plates. It was clearly evident from this that the upper courses of the piers, prior to being repaired, had been "rocking" due to the horizontal movement of the truss spans and this had caused serious damage to the piers.

Another reason for good housekeeping in connection with steel bridges: The endurance limit of steel members subjected to repeated stress is seriously lowered if corrosion is present. For instance, the Canadian National replaced several steel I-beam spans which had developed extensive horizontal cracks extending from the ends of the beams along the bottom fillets.

In every case the fillets were found to be corroded. Proper cleaning of the bridge seats alone would have materially reduced this corrosion, thus prolonging the life of these spans.

Cleaning and painting the portions of steel bridges exposed to

corrosion accelerators such as brine, smoke exhaust from steam locomotives and now diesel locomotive exhaust fumes, will greatly prolong the life of the members affected and will prove economical in a long-range program. There is some question, from the economic viewpoint,

of the necessity for painting steel-work exposed merely to atmospheric conditions. However, the steel should at least be kept clean, in order to obtain a greater service life, and reduce the future maintenance costs of repairs and/or replacements.

Necessity for Patrolling Track

What factors determine the necessity and/or frequency of patrolling track? Explain.

Conditions Determine Frequency

By W. H. HORNER

General Roadmaster, Terminal Railroad Association of St. Louis, St. Louis Mo.

The factors which affect the frequency of track inspections are entirely dependent on the conditions on different railroads. They should take into consideration the speed of trains, their classification and their makeup. They are determined mostly by objects falling from cars, unstable roadbed and embankment conditions and track failures.

It has been my experience that the continuous daily patrolling of track around yards is a necessity, on account of debris which falls from cars into switches, and railways and highway crossings. When switches have been misused by being run through, repairs are sometimes attempted by yard forces not familiar with this type of work, and no report made to the track department. These conditions may cause an accident before being found by the track forces.

It is my personal opinion that properly patrolled track is a big saving in maintenance and is also a large factor in safety.

Track Conditions Determine

By GEORGE S. CRITES

Division Engineer (Retired)
Baltimore & Ohio, Baltimore, Md.

General conditions of track, terrain and climate determine when and how tracks should be patrolled but under no conditions can regular "trackwalkers" be justified except under very unusual circumstances. If conditions exist or arise which call for track patrolling, then a continuous patrol should be provided.

Tracks which can go safely for 16 hr without being patrolled can go without being patrolled the

8 hr while regular trackmen are on duty.

A section foreman should cover his entire section at least once a week to assure himself that all things are in order and to plan his work ahead. The supervisor or roadmaster should cover his entire territory at least once a month to check conditions, progress of work and go over plans with his foremen. Such inspections should suffice except in bad terrain or bad weather.

Terrain where slips, slides, falling rocks or other disturbances may occur with little or no notice, must be protected by patrolmen or watchmen as circumstances demand, and during heavy storms and unusual run-offs the entire affected track area must be continuously patrolled.

Dangerous to Generalize

By A. S. LANG

Instructor, Transportation School,
Fort Eustis, Va.

It is almost impossible to make a complete list of all of the factors that determine the necessity and frequency of patrolling track, as dependent as they are upon local conditions and maintenance practices. Nonetheless, it is possible to enumerate briefly the more important considerations in this regard. This list would include the following:

- (1) The density and speed of railroad traffic, especially passenger trains.
- (2) The standards to which the track structure is built and maintained.
- (3) The existence of intermittent hazards (such as high water, unusual subgrade settlement, rock and snow slides, etc.) which might affect train operation that is unprotected by any sort of signal or warning device.
- (4) The distribution of track main-

tenance work between section gangs, district and extra gangs, and the location of such personnel.

The first of these factors is obvious, though it is important to note that, while the need for track patrolling usually increases as train density and speeds increase, it also becomes more difficult to patrol track by motor car, and instead trackwalkers may have to be employed. The second factor is not so obvious, because, as the standards of track structure increase, the need for patrolling ordinarily decreases. More frequent inspections by foremen and supervisors may be necessary, but patrolling is less necessary. The third factor is also obvious, as special hazards may often require special precautions in the form of scheduled patrols.

The fourth consideration is more difficult of simple analysis than the others. Where section gangs are traversing their territory regularly in the performance of small jobs, patrols may be unnecessary; but where section gangs are tied down by out-of-face surfacing and rail or tie renewals, special patrolling may have to be undertaken. In this connection, however, remember again that local track conditions and maintenance practices may vary so greatly that it is dangerous to generalize too much on what policy to follow.

Safety Is Main Consideration

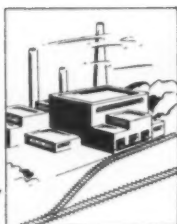
By J. H. GIBBS

Roadmaster, Missouri Pacific,
Arkansas City, Kan.

In my opinion, the patrolling of track is done for two reasons, the first of these is safety. This covers, more or less, the patrolling that is done outside of the regular working period, as at night or on Sundays and holidays.

Bad windstorms have been known to blow pole lines, trees and various other things over, or onto, the tracks. While most of these incidents may never cause a derailment, there is always the possibility that they might.

(Continued on page 74)



PRODUCTS OF MANUFACTURERS...

... new, improved equipment, materials, devices



CATERPILLAR INTRODUCES NEW 4-WHEEL TRACTOR

AN ALL-NEW four-wheel tractor designed primarily for use with the Caterpillar No. 15 scraper, No. 10 scraper and W10 wagon is being manufactured by the Caterpillar Tractor Company, Peoria, Ill.

Designated the DW15, the new unit is powered by a six-cylinder, D326 diesel engine which produces 150 hp at 1800 rpm. The engine features aluminum alloy pistons

with cast iron band backing for the top compression ring and has a 5½-in by 6-in bore and stroke. Other engine features include a triple-duty oil pump and chrome-nickel steel heat plugs incorporated into the pistons. Oil can be picked up from the front or rear of the oil pan or from the main oil sump located near the center of the tractor.

Standard transmission provides double-speed ranges with 10 forward speeds up to 24 mph and two reverse speeds up to 3.3 mph. An

optional final drive is also available which gears the machine for speeds up to 31.3 mph. An air booster on the flywheel clutch reduces necessary pedal pressure when engaging and disengaging the dual, 16-in metallic clutch plates.

Wheel brakes are also equipped with compressed air boosters and are foot pedal controlled. Brakes on the trailing unit are actuated automatically just before the prime mover brakes take hold, which, it is stated, insures anti-jackknife protection.

The new machine is equipped with a 75-gal fuel tank which is claimed to be adequate for a full day's operation. The operator's seat is of foam-rubber construction and has an adjustable snubber arrangement which minimizes rebounds and gives the operator greater riding comfort. Starting is provided by a 6-v electric starter motor.

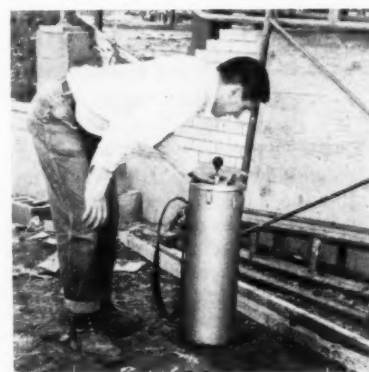
An improved hitch design facilitates quick, easy removal of a trailing unit, and pull hooks are located on the front bumper. An added feature is lighting which is provided by two headlights on the front and rear bumpers. Overall length of the machine is 16 ft 8 in with a 121½-in wheelbase. Front tires are 12.00 by 20, 14-ply traction type and rear tires are 21.00 by 25, 20-ply rock type.



PORTABLE AIR COMPRESSOR
DESIGNED for mounting in service trucks, the new Quincy Model

HT-325 compressor supplies air for inflating tires, operating lubricating equipment, pneumatic wrenches and other tools. The gasoline-engine power unit can be started with a pull rope or electric starter powered by the truck battery.

A tank outlet manifold supplies reduced air pressure for tools and full pressure for other requirements. Tank pressure from 165 to 175 psi is automatically maintained by a constant speed unloader, and maximum continuous pressure is 175 psi. The compact design of the Model HT-325 permits mounting in the smallest pick-up truck. The compressor unit is manufactured by the Quincy Compressor Company, Quincy, Ill.



PORTABLE FOUNTAIN

A PORTABLE drinking-water
(Continued on page 58)

BRUSH CONTROL BY THE USE OF CHEMICAL . . .

. . . IS FAST BECOMING AS MUCH OF A STANDARD PRACTICE AS CONTROL OF GRASS AND WEEDS ON BALLASTED AREAS.

For the past three years the larger systems have studied the benefits in the use of different types of chemical. The data accumulated over this period provides convincing evidence that the chemical method is an improved method and large economies may be effected by turning to it.

We have cooperated with many railroads in such work. We have photos—comparative figures. We know the carry-over benefits that the several different types of chemical contribute.

All such data should be of real interest to any engineer who has held off on extensive brush clearing work because of the high cost of doing it in the usual old style way.

We invite exchange of information on the subject.



READE MANUFACTURING COMPANY, INC.

JERSEY CITY 2, N. J.

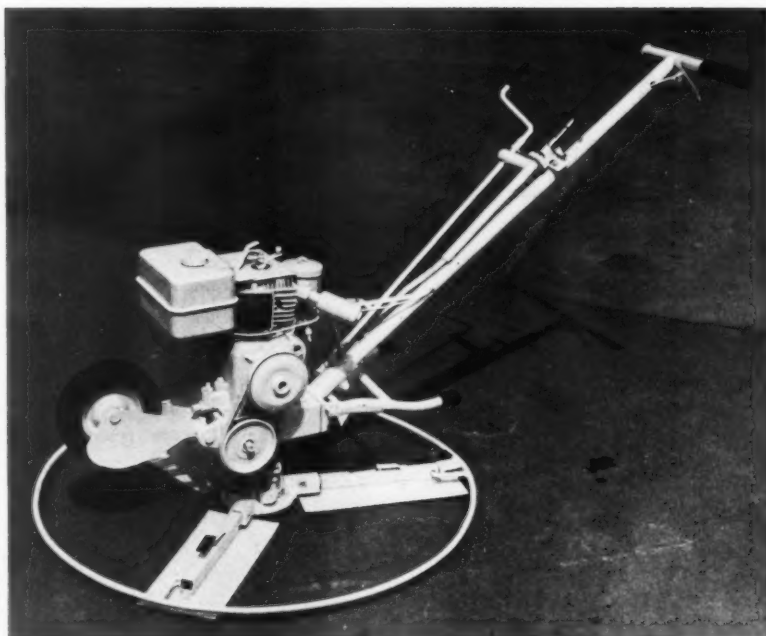
WORKS: JERSEY CITY • CHICAGO • KANSAS CITY • MINNEAPOLIS • BIRMINGHAM • STOCKTON



New Products

(Continued from page 56)

fountain, designed for use by gangs of men working out-of-doors where fresh water is not easily obtainable, has been announced by Mink-Dayton, Inc., Dayton, Ohio. The fountain consists of a double-walled tank. The inside wall is made of stainless steel and is insulated from the outside wall. The tank has a capacity of 4 gal and operates on an automatic air-pressure principle. Water flows from a hole in the top of the tank when the valve is opened by pushing a button on top of the tank. The top is removable for refilling with water and is held in place by snaps. A shoulder strap for carrying the unit about, as well as spill cup and salt dispenser, are available at extra cost.



PORTABLE CONCRETE FINISHING MACHINE

BY ADDING a retractable rubber-tired wheel to its Model T-1 concrete troweler, the White Manufacturing Company, Elkhart, Ind., has made the machine fully portable and operative by one man. Another feature resulting from the built-in wheel and stand is the method for mounting and removing the troweling and float blades. With the wheel down, the blades and ring are raised about 2 in above the floor and can be easily removed. It is reported that blades can be removed for washing or for changing from floating to finishing operations in a matter of seconds, and that the ring can be quickly removed so that the machine can

be wheeled through a narrow doorway.

Another feature of the new unit is that the steering column with all of its controls can be removed, thus enabling an operator to knock down the entire machine for carrying in the trunk of an automobile. The pitch of the blades is controllable during operation from the top of the steering column by a lever adjustment. A safety feature in the throttle control slows the engine down to idling and stops the troweler if the operator releases the handle. Power for the new troweler is supplied by a Briggs & Stratton 2-hp gasoline engine with an automatic clutch. The Model T-1 is a 34-in machine with three blades and a 36-in ring. Total weight is 130 lb.



TRUCK-MOUNTED CRANE

COLES CRANES, Inc., has announced a new truck-mounted crane unit with a Coles superstructure on a specially designed crane-carrier chassis. The superstructure, incorporating all the customary gas-electric features associated with Coles Cranes, is designed to lift 24,000 lb at a 10-ft radius. On the new truck-mount the crane is capable of travelling at speeds of 30 mph and the company reports that weight distribution is such that it complies with all state highway requirements. The company also states that it is producing a truck-mounted version of its 7½-ton crane.



IMPROVED STARTER ON NEW ENGINE

A SELF-CONTAINED starting unit which eliminates the necessity for a rope is an important feature of the new Kohler Model K90T engine manufactured by the Kohler Company, Kohler, Wis. The 3.6-hp unit weighs 40 lb and is furnished with a fly-ball type governor, oil-bath cleaner, silencer-type muffler and a 1-gal fuel tank as standard equipment. The new starting arrangement is said to provide easy, quick starting.

"... Very Satisfactory ... A Nice Saving"



Roy H. Gilkey, Division Engineer of Central of Georgia Railway Company, is a past President of the Roadmasters' and Maintenance of Way Association of America.

Form 204

CENTRAL OF GEORGIA RAILWAY COMPANY

Savannah, Georgia—
March 4, 1954
Lubricators

Mr. H. T. Armstrong, Manager,
Railroad Sales,
H. T. Kennedy Company, Inc.,
37 Wall Street,
New York 5, New York.

Dear Holly:-

We installed the Aladdin Rail and Wheel Flange Lubricator at Millen, Georgia, during April 1953. This lubricator was installed on a busy lead and has proved very satisfactory, carrying grease each way through switch points and over frogs.

One of the fine features is that no wheels make contact with any part of the lubricator. This lubricator can be installed very easily by one man, and will fit all types of rail. Another good feature is that the grease is carried along the side of the rail head and not deposited on the top of the rail. It has shown a nice saving on the wear of switch points and frogs.

Care must be taken to see that the correct grease is used, and that the lubricator is kept clean and in adjustment at all times.

Sincerely yours,
Roy H. Gilkey
Roy H. Gilkey,
Division Engineer.

The Central of Georgia Railway Company is still another important railroad now using the

Experienced railroad men value its economy, convenience and simplicity.

The ALADDIN Lubricator is a self-contained valveless grease pump. It fits any rail — cuts maintenance on curves, frogs and switches.

**ALADDIN
LUBRICATOR**

▶ 62 Class I railroads now have ALADDIN Lubricators in successful operation. Order one for your road. Try it. Test it and you will join the increasing number of railroads adopting the Aladdin as standard equipment. Only \$178.00 Delivered.

H. T. KENNEDY COMPANY, INC., 37 Wall St., New York 5, N. Y.



THE MONTH'S NEWS...

... among railway men—the associations—the suppliers

Changes in Railway Personnel

General

Alfred E. Perlman, executive vice-president of the Denver & Rio Grande Western and an engineer by training and experience, has been named president and chief executive officer of the New York Central, succeeding **William White** who resigned following the victory of **Robert R. Young** and his associates in the battle for control of the Central.

Mr. Perlman was born at St. Paul, Minn., on November 22, 1902. Following his graduation from the Massachusetts Institute of Technology and the Harvard School of Business Administration, he joined the Northern Pacific as a field construction draftsman in 1923. He later held the positions of assistant supervisor B&B and roadmaster. In May 1935, after a period as consultant for the Railroad Division of the Reconstruction Finance Corporation, Mr. Perlman joined the Burlington as an assistant engineer, maintenance of way, in charge of reconstruction of that road's Colorado, Nebraska and Kansas lines, which had

been damaged by floods. He went to the D&RGW in May 1936 as engineer maintenance of way and was promoted to chief engineer in May 1941. Seven years



Alfred E. Perlman

later he became general manager and in 1952 he was elected executive vice-president. As president of the New York Central his office is at New York.

Fred J. Voss, vice-president and chief engineer of the Duluth, Missabe & Iron Range, and acting chief executive officer of the road since January 1 of this year, has been elected president and general manager.



Fred J. Voss

Mr. Voss is a native of Duluth, Minn., and received a Bachelor of Science degree from Purdue University in 1926. He entered railroad service with the Duluth, Missabe & Northern that same year as a member of a surveying crew and, in 1927, was transferred to the valuation department. In 1928 he left the railroad to become a field engineer for the Portland Cement Association, and in 1931 joined the Whitney Materials Company, Duluth, as sales engineer. He returned to his duties with the Portland Cement Association in 1933, and in 1936 rejoined the DM&N as inspector, office of president. In 1939 he was named assistant to vice-president of the DM&IR, which position he held until 1944 when he was named vice-president. He was appointed vice-president and chief engineer in 1952.

Thomas M. Goodfellow, superintendent of the Pittsburgh division of the Pennsylvania at Pittsburgh, Pa., and an engineer through training and experience, has been appointed general manager of the Long Island at Jamaica, N. Y., upon

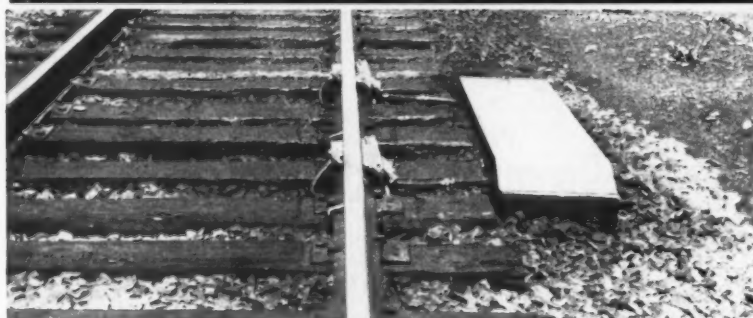


Thomas M. Goodfellow

termination of the railroad's bankruptcy through federal court approval.

Mr. Goodfellow was born at Altoona, (Continued on page 62)

M & S LUBRICATORS



For Efficient—Economical Rail and Flange Lubrication

The M & S Rail and Flange Lubricator offers advantages found in no other lubricator—the result of 22 years' experience in rail lubrication. Combines simplicity of design with rugged construction insuring economical year in—year out rail lubrication.

Maintenance, other than filling the tank with oil, is rarely necessary. The efficient design with automatic lubrication of the two moving parts in each plunger block, results in long trouble-free service life. Easy installation—no rail drilling—no tie spacing. Note these down-to-earth prices: Unit as shown above—\$298.00. Single plunger unit—\$166.50. Write for complete details.

MOORE & STEELE CORPORATION
OWEGO, TIOGA COUNTY, N. Y.



Kershaw Track Broom making first trip. Note weeds and car drippings in track centers ahead of Track Broom. Material placed between tracks may be loaded onto trucks or cars with front-end loader.



Kershaw Track Broom sweeping material onto conveyor and piling it in windrows between tracks. Extra length conveyor may be added and material placed on one or both sides of the shoulder beyond ballast toe line.

The Kershaw Track Broom . . . Another FIRST for Kershaw!

TWO Operations—Yard Cleaning And Removing Loose Ballast Between Rails Behind Surfacing Gangs

Here it is—From Kershaw Manufacturing Company—a new track broom that combines efficient operation with tremendous savings in track maintenance costs. Use the Kershaw Track Broom for yard cleaning operations, and to fill cribs and remove excess ballast after surfacing operations. The broom can be operated for \$35 a day, including operator, depreciation, gas, oil and repairs. In normal yard-cleaning operations, the machine will clean one to one-and-a-half miles of track daily.

The Kershaw Track Broom is one-man operated, lightweight (approximately 5,000 pounds), self-propelled, easily removed from track and easily transported. It will save you money in your yard cleaning and surfacing operations. Send today for an illustrated brochure on the Kershaw Track Broom.

At a daily cost of just \$35, including operator, the Kershaw Track Broom cleans one to one-and-a-half miles of yard track in a normal working day, or works from one to two miles of track daily behind the surfacing gang. Note ballast ahead of machine will be swept into empty cribs and excess ballast placed on shoulder.



Track Talk—Published every other month by Kershaw Manufacturing Co. Write for your free copy today.

THREE PLANS make it easy for you to use the Kershaw Track Broom and other Kershaw equipment:

1. Three-year lease.
2. Six to 12 months rental with option to purchase.
3. Outright purchase.

There's a plan to suit your needs.

RECOGNIZE THIS SYMBOL
OF LEADERSHIP



KERSHAW MANUFACTURING CO., INC.

MONTGOMERY, ALA.

Trackwork Equipment Developed and Proven on the Job

Track Broom . . . Ballast Regulator . . . Kribber . . . Jackall . . . Track Crane
Tie Replacer . . . Hydraulic Jack . . . Utility Derrick

Railway Personnel

(Continued from page 60)

Pa., on October 1, 1907, and began work for the PRR in June 1924 as a special apprentice during college vacation. After graduation from Cornell University (C.E., 1929), he joined the road permanently, serving on the engineering corps and as assistant supervisor and supervisor of track. In December 1944 he was appointed assistant division engineer at Philadelphia, Pa., and in September 1945 he was advanced to division engineer at Columbus, Ohio, in which capacity he was transferred to Pittsburgh in January 1947, where he was appointed assistant superintendent of freight transportation in January 1948. Since July 1948 Mr. Goodfellow has served as superintendent of a number of the PRR's divisions, becoming superintendent of the Pittsburgh division in April 1953.

B. W. Tyler, assistant general manager of the Central Region of the Pennsylvania at Pittsburgh, Pa., and an engineer through training and experience, has been promoted to assistant to vice-president of that region.



B. W. Tyler

Mr. Tyler was born on April 14, 1903, at Shelbyville, Ill., and was graduated from Rose Polytechnic Institute in 1923. He began service with the PRR in January 1925 as an assistant on the engineering corps of the St. Louis division. He was assistant supervisor and supervisor of track on various divisions until June 1934, when he was appointed assistant division engineer at New York. The following November he was advanced to division engineer on the Conemaugh division, in which capacity he later was transferred to the Maryland division. In 1945 Mr. Tyler was promoted to superintendent, which position he held, successively, on the Renovo, Panhandle and Pittsburgh divisions until April 1953, when he was made assistant general manager of the Central Region—the position he held at the time of his recent promotion.

Engineering

The Chesapeake & Ohio has announced the consolidation of its construction and maintenance department on a

system basis and the discontinuance of operations on a district basis.

Two regions have been established to replace the previous district organization. The Southern region, including all of the former Chesapeake district, except the Hocking division and the Walbridge-Toledo Terminal, will be under the direction of **L. T. Nuckols**, chief engineer—Southern region, with headquarters at Richmond, Va. The Northern region, including all of the Pere Marquette district plus the Hocking division and Walbridge-Toledo Terminal, will be under the direction of **T. F. Burris**, chief engineer—Northern region, with headquarters at Detroit, Mich.

Raymond H. Miller, who has been on the engineering department staff of the Bangor & Aroostook since 1948, has been named principal assistant engineer at Houlton, Me., succeeding **Palmer H. Swales** who, as noted elsewhere in these columns, has been appointed assistant to mechanical superintendent.

R. H. Peak, assistant to division engineer on the Illinois Central at New Orleans, has been promoted to the newly created position of division engineer at New Orleans. **D. T. Settoon**, also assistant to division engineer at New Orleans, has retired. Both positions of assistant to division engineer at New Orleans have been abolished.

H. B. Christianson Jr., formerly with the Santa Fe, has been appointed division engineer on the Rock Island at Des Moines, Iowa, succeeding **J. W. Shurtleff**, who has been promoted to general roadmaster for the Western division at Fairbury, Neb.

Albert L. McHenry has been appointed senior assistant division engineer on the Southern Pacific at Dunsmuir, Calif., succeeding **Rex R. Baymiller**, who has been appointed division engineer at that point. Mr. Baymiller replaces **Howard F. Dully**, who has been transferred to Sacramento succeeding **W. F. Turner**, who is retiring after 53 years of railroad service, 48 of it with the Southern Pacific.

Herbert C. Fox, division engineer on the Southern at Greensboro, N. C., has been promoted to the newly created position of process engineer with headquarters at Atlanta, Ga.

Mr. Fox was born at Chatham, Va., on November 11, 1910. He entered the service of the SOU as a bridge and building mechanic on November 1, 1926, serving later as rodman, track apprentice and track laborer. In September 1934 he was appointed student apprentice, in which capacity he served, consecutively, at Charlotte, N. C., and Greenwood, S. C. Appointed supervisor of track in August 1936, Mr. Fox held that position successively at Emporia, Va., Richmond, Va., and Spartanburg, S.C. In September 1944 he was named division engineer at Greensboro—the position he held at the time of his recent promotion.

William F. Poole, supervisor of track on the Atlantic & Danville at South Clarksville, Va., has been promoted to engineer, maintenance of way and structures. Mr. Poole was born on October

25, 1906, at Linwood, N. C., and began his railroad career in 1919 as a section laborer on the Southern. He subsequently served in various capacities in the maintenance-of-way department until 1941, when he was appointed supervisor of track, which position he held successively at Camden, Greenwood and Columbia, S. C. in 1948 Mr. Poole left the railroad to work in private industry, where he remained until May 1951, when he joined the A&D as supervisor of track at Clarksville—the position he held at the time of his recent promotion.

John Jackson, assistant roadmaster for the Canadian Pacific at Kenora, Man., has been promoted to roadmaster at Fort William, Man., succeeding **August Swanson**, who has retired. **M. Shiska**, assistant roadmaster at Estevan, Man., has been transferred to Kenora to succeed Mr. Jackson. **Antonio Coletti** has

Clyde A. Stephenson, assistant division engineer on the Southern at Louisville, Ky., has been promoted to division engineer at Hattiesburg, Miss., to succeed **Troy A. Barnett**, who has been transferred to Knoxville, Tenn. **Donald H. MacLeod**, assistant trainmaster at Knoxville, has been appointed assistant division engineer at Princeton, Ind.

H. A. Smith, assistant chief engineer for the Duluth, Missabe & Iron Range, has been appointed chief engineer at Duluth, succeeding **Fred J. Voss** whose election as president and general manager is noted elsewhere in these columns.



H. A. Smith

Mr. Smith joined the DM&IR as a draftsman in 1916. He later became chief clerk bridge and building department and assistant supervisor bridges and buildings before being named supervisor bridges and buildings in 1931. He was appointed principal assistant engineer in 1942 and in 1949 was advanced to assistant chief engineer.

W. R. Cox, division engineer of the Carolina division of the Seaboard Air Line at Savannah, Ga., has been transferred to the Alabama division at Americus, Ga., to succeed **C. R. Harrell**, who, in turn, has succeeded Mr. Cox at Savannah.

F. B. Stafford, instrumentman on the Chesapeake & Ohio at Ashland, Ky., has

(Continued on page 64)

JOB REPORT:

RAILROAD:

UNION PACIFIC

CONTRACTOR:

MORRISON-KNUDSEN

EQUIPMENT:

ALL CATERPILLAR!



SIX MILES south of Idaho Falls, Idaho, Morrison-Knudsen had a big job for the Union Pacific. Rails had to be raised seven inches on new ballast, shoulders and banks widened and drainage constructed.

Every piece of equipment on this particular job was Caterpillar. This was the lineup: two D8s and a D6 (all equipped with Caterpillar Bulldozers), a No. 12 Motor Grader, two DW20s with matching scrapers and a D7 for push loading.

There are hard-headed business reasons why *Cat** machines compose "a major portion of Morrison-Knudsen's multi-million-dollar fleet of construction equipment."

Look, for instance, at the work produced by the big, dependable No. 12 Motor Grader. Besides being essential on new construction, it can be used for keeping right of way clean, and reshaping slopes and drainage ditches. When winter comes the No. 12 becomes a valuable snow-removal unit.

In addition, this 100-horsepower versatile machine is kind to your operators. Constant-mesh transmissions enable them to shift easily. No large gear housings interfere with their visibility. Anti-coast brakes prevent creeping of adjustments under load and vibrations. In other words, the blade stays where the operator puts it.

Your Caterpillar Dealer will be happy to show you why the No. 12 will do more work, better, day after day. Have him demonstrate on *your* job. Just name the date.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

*Both Cat and Caterpillar are registered trademarks—®



Railway Personnel

(Continued from page 62)

been appointed assistant cost engineer at Richmond, Va. **William Ward, Jr.**, assistant cost engineer at Richmond, has been transferred to Columbus, Ohio.

John W. Kidd, whose appointment as assistant chief engineer, maintenance of way and structures, Eastern lines, of the Southern at Charlotte, N. C., was announced recently (RT&S, June, p. 66), was born at Mount Holly, N. C., on July 19, 1906, and entered the service of the SOU as a rodman at Charlotte on April 15, 1924. He was appointed junior engineer at Knoxville, Tenn., in May 1928, later serving in various capacities until January 1939, when he was promoted to bridge and building supervisor at Atlanta, Ga. Returning to Knoxville in November 1949 as assistant division engineer, Mr. Kidd was advanced to division engineer at Louisville, Ky., on July 1, 1951. He was named assistant superintendent at Knoxville in August 1953, the position he was holding at the time of his recent promotion.

M. S. Wakely, assistant division engineer on the Canadian Pacific at Calgary, Alta., has been appointed division engineer at that same point, succeeding **W. S. M. Davidson** who has been transferred to Lethbridge, Alta. Mr. Davidson replaces **S. Brownstone**, whose appointment as roadmaster at Empress, Alta.,

is noted elsewhere in these columns. **G. P. Beach**, roadmaster at Lloydminster, Alta., has been named assistant division engineer at Calgary, succeeding Mr. Wakely.



M. S. Wakely

Mr. Wakely has been with the CPR for 24 years, and for the past three months had been in charge of developing applications for industrial services at Calgary. Prior to that, he served as roadmaster at Lethbridge for a year.

Mr. Beach began his service with the CPR as a transitman at Brandon, Alta., in 1946. Prior to that, he had worked part time for five summers while attending college. He was a relief roadmaster

at Virden, Alta., before being appointed roadmaster at Lloydminster.

H. B. Beaumont has been appointed valuation engineer for the Western Maryland at Baltimore, Md., succeeding **E. M. Killough**, who has retired.

R. A. Swanson, division engineer on the Canadian Pacific, has been named assistant district engineer for the Alberta district with headquarters at Calgary, Alta., succeeding **F. A. Felstead**, who has been transferred.

H. R. Manby, whose retirement as chief engineer of the Tennessee Central was announced recently (RT&S, July, p. 66), was born at West Liberty, Iowa, on February 15, 1880. After attending high school at Rockwell City, Iowa, and Iowa Business College at Des Moines, Mr. Manby joined the Illinois Central as a track apprentice in 1901. He later served as chairman and rodman until September 1903 when he left the IC to become assistant engineer for the Tennessee Central. He served as such until 1909 when he was appointed track supervisor. In November 1910, he joined the Seaboard Air Line as an engineer-inspector, and in January 1913 returned to the Tennessee Central as an assistant engineer. In April of that same year, he was appointed engineer maintenance of way and was given the additional title of superintendent in April 1917. He was promoted to chief engineer in April 1918, (Continued on page 66)

TRACK ACCESSORIES

JOINT BARS

ANGLE BARS

ANGLE BARS for OLD RAILS

PLAIN SPLICE BARS

TRACK SPIKES

Inquiries solicited.

Manufactured by

TREDEGAR COMPANY

RICHMOND II, VIRGINIA

STATION LOOKS LIKE NEW

(Continued from page 45)

terior modernization. A door located in the wall at the end of the building was removed and the opening sealed with masonry obtained from the removal of the entryway wall. A window on the opposite side of the baggage room was also sealed in the same manner. On the track side of the room a new door was installed, together with new trim and a fluted glass sidelight. A new maple floor was applied over the old floor, and a door serving a wire-mesh enclosure within the baggage room was moved to a more convenient location and enlarged.

Exterior Appearance Improved

Although no radical changes were made on the outside of the building, considerable repair work was carried out. Old fan-light sections of glass above the windows throughout the building were removed and replaced with panels of fluted glass. Asphalt shingles were applied to the roof of the clock tower, replacing an old slate roof. A weather vane at the top of the spire was repaired, as was the clock face, which was repainted and gold leaf applied to the numerals and hands. Gutters and downspouts on the track side of the station were repaired, and those on the street side were replaced with new aluminum ones.

After these repairs were completed, the masonry surfaces on the exterior of the building and clock tower were steam cleaned. To complete the station renovation, all of the exterior trim, window sash and window frames were repainted. All of the work on this project was performed with company forces, working under the direction of S. L. Mapes, chief engineer, and the author.

WOOLERY POWER BOLT TIGHTENER

Model M.B.T.

**For Periodical
Maintenance
Of Rail Joints**



Automatic torque release assures uniform tightness to every bolt.

Adjustable to any desired tension by an automatic kick-out clutch.

One speed design simplifies operation . . . reduces maintenance costs.

Wisconsin AKN Engine

Chuck rotation instantly changed through reverse gear. Interchangeable sockets for single standard wrench.

Set-off wheels for quick track clearance.

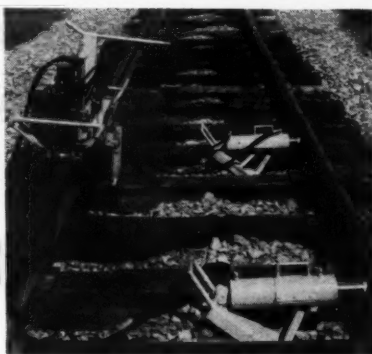
Thoroughly field tested and approved. Saves original cost in a single season's operation.

Net Weight, 565 Pounds

WOOLERY MACHINE CO. Minneapolis 14, Minn.

Pioneer Manufacturers of Railway Maintenance Equipment Since 1917.

MODEL P-O HYDRAULIC TRACK LINER



The Model P-O Hydraulic Track Lining Unit consists of two hydraulically operated rams and a portable power plant. Mounted for easy movement on a pair of double flanged rollers, it is stabilized on the rail by means of a hinged bracket support. The hydraulic pump is driven by a six-horsepower, air-cooled, gasoline engine. Either one or both rams may be used, depending on requirements. Foreman and four to five men line up to 6000-ft. of track per day.

SPECIFICATIONS

Length 54" Width 24"
Height 30" Weight 275 lbs.

Write today for complete information

Railway Trackwork Co.

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TRACK MAINTENANCE MACHINERY

Rail Grinders • Switch Grinders • Cross Grinders • Surface Grinders •
Rail Drills • Ballast Extruders • Bit Sharpeners • Tie Nippers •
Grinding Wheels • Cut-off Wheels • Track Liners • Brushmaster Saws

The IMPROVED
MADE OF ALLOY SPRING STEEL
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Railway Personnel

(Continued from page 64)

but during federal control of the road from January 1919 to February 1920, served as division engineer. He was again made chief engineer in March 1920 and retained this position until his recent retirement.

Track

Graden L. Swett has been appointed roadmaster on the Bangor & Aroostook at Oakfield, Me., succeeding **Orville G. Armstrong**, who retired June 30.

L. G. Riehm, roadmaster for the Chicago & North Western at Ironwood, Mich., has been transferred to Winona, Minn., as roadmaster succeeding **J. M. Fahey**, who has retired. The position of roadmaster at Pierre, S. D., has been abolished and **E. E. Barton**, formerly holding that position, has been assigned other duties.

L. N. Uri has been appointed roadmaster on the Burlington at Orleans, Neb., replacing **G. E. Armstrong**, who has been transferred to Wymore, Neb., succeeding **S. A. Merwin**, who has retired after 47 years service.

H. R. Davis, assistant supervisor of track on the Maryland division of the Pennsylvania at York, Pa., has been transferred to the Eastern division at Mansfield, Ohio.

S. Brownstone, division engineer on the Canadian Pacific at Calgary, Alta., has been named roadmaster at Empress, Alta., succeeding **D. R. Johnson**, who has been transferred to Lloydminster, Alta. Mr. Johnson replaces **G. P. Beach**, whose promotion to assistant division engineer at Calgary is noted elsewhere in these columns.

Henry A. Siravo, whose promotion to supervisor of track on the Pennsylvania at Earnest, Pa., was announced recently (RT&S, June, p. 70), was born on September 4, 1917, at Philadelphia, Pa., where he entered the service of the PRR as a trackman on May 10, 1934. Continuing at that location, Mr. Siravo was advanced to track foreman in July 1945 and to general foreman of track on December 1, 1950. On June 7, 1951, he was moved to New York as assistant supervisor of track—the position he held at the time of his recent promotion.

Bridge & Building

O. C. Rhoades, assistant supervisor B&B on the Chicago & North Western at Fond du lac, Wis., has been promoted to the newly created position of supervisor B&B at Winona, Minn.

T. N. Lingle, general foreman B&B on the Illinois Central at Carbondale, Ill., has been named supervisor B&B at that point succeeding **L. H. White**, who has been transferred to New Orleans.

Claude E. Davis, acting division engineer on the Santa Fe, has been appointed general foreman B&B&WS on the Western division, with headquarters at Dodge City, Kans., succeeding **David C. Kreigh** whose death is noted elsewhere in these columns.

James F. McCay, who has been appointed supervisor of bridges and buildings on the New York Central at Chicago (RT&S, July, p. 74), was born at Knox, Ind., on March 10, 1903. He began his railroad career on the New York Central as a bridge carpenter in April 1924. He later served as assistant bridge carpenter foreman, bridge and building inspector and assistant supervisor of bridges and buildings—all on the Western division prior to his recent promotion.

Special

Palmer H. Swales, principal assistant engineer of the Bangor & Aroostook at Houlton, Me., has been appointed assistant to mechanical superintendent and assigned to special duties in the mechanical department.

Obituary

Carleton B. Harveson, chief engineer maintenance of the Baltimore & Ohio at Baltimore, Md., died suddenly at Cincin-

BEALL
HI-DUTY
SPRING WASHERS

Made especially
for Railroad Service

BEALL spring washers are strong and tough, yet provide the "springing action" required at rail joints, frogs and crossings. They are made especially for railroad service according to the exact A.R.E.A. dimensions.

BEALL TOOL
DIVISION
of Hubbard & Company
East Alton, Illinois

SPRING WASHER SPECIALISTS for 30 years

nati, Ohio, on June 29. Mr. Harveson was born at Jacksonville, N. J., on December 18, 1885, and attended Bucknell College. He was employed by the Philadelphia & Reading in 1905 as a draftsman and was supervisor for that company when he was furloughed for war service as 1st lieutenant of the First Engineers of the New Jersey National Guard in April 1917. He was promoted to captain and then major of engineers and was on foreign duty from December 1917 to June 1919. He returned to the service of the P&R in July 1919 as supervisor. In 1922 he was appointed division engineer on the Baltimore & Ohio at Philadelphia, in which capacity he was transferred to the Baltimore division in 1927. In June 1936 Mr. Harveson was promoted to engineer maintenance of way of the Eastern Lines, and in 1944 to chief engineer of maintenance.

David C. Kreigh, general foreman bridge and buildings and water service on the Sante Fe at Dodge City, Kans., died recently.

C. H. R. Howe, retired cost engineer on the Chesapeake & Ohio, died recently at his home in Richmond, Va.

J. M. R. Fairbairn, retired chief engineer of the Canadian Pacific, died recently.

Mr. Fairbairn was born at Petersboro, Ont., on June 30, 1873. He was graduated from the University of Toronto in 1893, and after eight years of varied engineering experience, entered the service of the CPR in 1901 as an assistant engineer. Following progressive promotions, Mr. Fairbairn became assistant chief engineer, Eastern Lines, in 1911 and chief engineer of the system in 1918. He retired as chief engineer in 1938. He is a past president of the AREA, having served as such during 1925-1926. He was made a life member of the association in 1939 and an honorary member in 1946.

F. L. Nicholson, retired chief engineer of the Norfolk & Southern, died recently at his home in Norfolk, Va.

Association News

Roadmasters' Association; Bridge & Building Association

Practically all arrangements have now been completed for the concurrent annual conventions of the Roadmasters and Maintenance of Way Association and the American Railway Bridge & Building Association, to be held September 13-15 at the Conrad Hilton Hotel, Chicago. The two meetings will convene at a joint opening session on Monday, September 13, in the Grand Ballroom of the hotel. Outstanding features of this session will be addresses by two top-ranking railway

1^{SCHIELD} Bantam DOES MORE EARNs MORE

is the most versatile "tool" you can own!

Get rid of those expensive specialty rigs that are used only once-in-awhile. They run up equipment inventory costs, have high operating and maintenance due to lack of use -- present costly labor problems. With a mobile T-35 Carrier BANTAM or new C-35 Crawler BANTAM you've got a multi-purpose tool that lifts, excavates, trenches, pile drives, loads and unloads bulk material, pours concrete - does them all efficiently, quickly, at lowest operating and maintenance costs in the industry.



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BRIDGE BUILDING



YARD WORK

LOOK WHAT A BANTAM DOES FOR YOU!

- 90 to 100 Cu. Yd. Hourly Production as a shovel.
- Lifts 10,000 to 12,000 lb. loads . . . booms up or down safely . . . accurately.
- Digs 100' of 5' trench per hour with Back Hoe.
- Loads out logs, pulp, rail ties and stringers, steel and other materials fast as crane with grapple or hook!
- Also works with pile driver, concrete bucket, magnet, backfiller, and clamshell.

LOOK WHAT OWNERS REPORT ON MAINTENANCE AND REPAIRS

- "Total maintenance cost of \$60 to \$70 for 2-year period on 2 Bantams."
- "Over 8 year period owning 4 Bantams total maintenance cost averaged \$200 per year."
- "No maintenance or repair at all in 8 months' operation."
- "Total maintenance includes cables, bucket teeth -- total \$100. No maintenance on basic units in 9 months."



SCHIELD Bantam

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ASK FOR FREE DEMONSTRATION NOW!

Let us prove to you
that a Bantam can **EARN
MORE BECAUSE IT DOES
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SEND ME INFORMATION ON:

- ☐ Re-manufactured Crane Carrier
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- ☐ Clam ☐ Crane ☐ Concrete Bucket
☐ Back Hoe ☐ Dragline ☐ Pile Driver
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There's a SIMPLEX JACK to Do Every RAILROAD JOB Faster-Easier



Fast Acting TRACK JACKS

15 ton capacity. The jacks set much more firmly and stand straighter under tie (without damage) or rail, due to large area toe lifts. Trip from either side. Two models have light weight aluminum housings.

ALSO: Tie removers and replacers.



Standard Speed BRIDGE JACK

The new A2515 25-ton jack has an aluminum alloy housing, which weighs only 40 pounds. 9-in. lift eliminates re-setting in bridge work. Recommended for use with jack support.

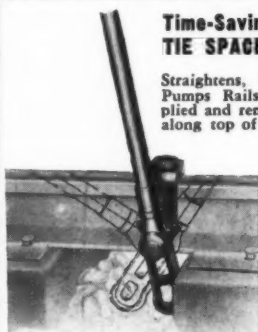
ALSO: A complete line of hydraulic jacks and pullers.



Versatile BRIDGE JACK

Lifts, pushes, pulls 15-tons on cap, toe or bolt attachment. Ideal for shimming, lining, painting and replacing timber decks. Two base sizes to fit between ties. Ratchet lowering for safety. Double socket permits use in close quarters.

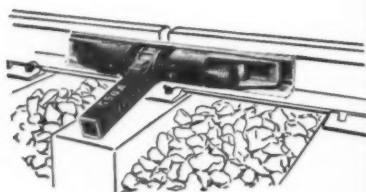
ALSO: Push and pull jacks for piling.



Time-Saving TIE SPACER

Straightens, Spaces Ties. Pumps Rails. Easily applied and removed. Slides along top of rails.

RAIL EXPANDERS for the Maintenance and Signal Departments



Permits one man to replace a rail pounding crew! For lining crossings and switches, pushing or pulling continuous rail, controlling expansion or contraction with no interruption of service. With lever socket locked down, nothing protrudes above rail head.

Pole Pulling and Straightening Jacks for the Signal Department



Two sizes, 5 and 15 tons for pulling or straightening all sizes of poles. Pivots on base, when desired, to any angle. Can also be used for guy wire tightening or for pulling underground cable. Model A1538—15-ton capacity—available with aluminum housing which reduces weight 35 pounds.

ALSO: Cable Reel Jacks for drums 30- to 96-in. diameter.



Write for Details
in Bulletin RR 52

TEMPLETON, KENLY & CO. • 2543 Gardner Road, Broadview, Illinois

officers. R. P. Hart, chief operating officer, Missouri Pacific, will speak on "Increasing Responsibility of Supervisors on Today's Railroads," and M. I. Dunn, vice president—construction and maintenance, Chesapeake & Ohio, will follow immediately with an address on "The Immediate and Long-Range Future of Maintenance of Way."

Immediately after lunch on Monday, the two groups will begin their separate sessions but will have another joint session on Tuesday afternoon, September 14. This session will also be featured by two major addresses. The first will be a talk by E. H. Hallmann, director of personnel, Illinois Central, whose remarks will deal with the importance of practicing good human relations. The other major address during this session will be one by C. P. Fisher, general manager, Chicago Union Station, on "The Effect of the H-Bomb on Tracks and Structures." Mr. Fisher will speak in his capacity as operating officer, Northern region, Railroad section, Illinois Civil Defense Agency. His address will be accompanied by the showing of a sound motion picture.

On Wednesday afternoon, September 15, members of both groups will participate in an inspection trip of the diesel

Meetings and Conventions

American Railway Bridge and Building Association—Annual meeting, September 13-15, 1954, Conrad Hilton Hotel, Chicago. Elise LaChance, Secretary, 431 S. Dearborn street, Chicago 5.

American Railway Engineering Association—Neal D. Howard, Secretary, 59 E. Van Buren street, Chicago 5.

American Wood-Preservers' Association—W. A. Penrose, Secretary-treasurer, 839 Seventeenth street, N. W., Washington 6, D. C.

Bridge and Building Supply Association—L. R. Gurley, Secretary, 201 North Wells street, Chicago 6.

Maintenance of Way Club of Chicago—E. C. Patterson, secretary-treasurer, Room 1512, 400 W. Madison street, Chicago 6.

Metropolitan Maintenance of Way Club—Secretary, 30 Church street, New York.

Mississippi Valley Maintenance of Way Club—P. E. Odom, Secretary-Treasurer, Room 1008, Frisco Building, 906 Olive street, St. Louis 1, Mo.

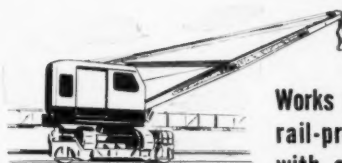
National Railway Appliances Association—J. B. Templeton, Secretary, 1020 So. Central avenue, Chicago 44; Lewis Thomas, Assistant Secretary, 59 East Van Buren street, Chicago 5.

Railway Tie Association—Annual Meeting, October 20-22, Mayflower Hotel, Washington, D. C. Roy M. Edmonds, Secretary-Treasurer, 1221 Locust street, St. Louis 3, Mo.

Roadmasters' and Maintenance of Way Association of America—Annual meeting, September 13-15, 1954, Conrad Hilton Hotel, Chicago. Elise LaChance, Secretary, 431 S. Dearborn street, Chicago 5.

Track Supply Association—Lewis Thomas, Secretary, 59 E. Van Buren street, Chicago 5.

RAILWAY TRACK and STRUCTURES



**Works on or off the
rail-propulsion car
with all shovel or
crane attachments**

**You get more
productive work-time**

**because Koehring 205
saves travel-time . . .
powers its own rail car**



With Koehring 205 RailAid, it's not necessary to move off-track over round-about routes from one work section to the next. Self-powered RailAid travels on-track at speeds up to 20 m.p.h. . . . does 2 to 3 times the work of conventional excavators and cranes that have to crawl or be hauled from job to job.

You can send RailAid anywhere along the line at a moment's notice to do any digging, lifting or material-handling. It works on or off-track . . . cleans ditches, widens embankments, stock-piles coal or ballast, loads and unloads cars, repairs trestles, lays rails, does pile-driving, handles scrap or salvage.

It loads or unloads itself on ramp-equipped car in less than 10 minutes. Crane or excavator sets car on and off-track . . . clears the right-of-way for normal through traffic. Propulsion car has 2-axle drive, with airbrakes on all 4 wheels. Torque converter gives smooth control of 20 m.p.h. travel speed. Wide car-"well" accommodates 16, 20 or 24-in. crawlers on excavator or crane. Versatile Koehring 205 gives you 1/2-yard dipper capacity as a shovel or hoe. As a crane it safely lifts 6.9 tons from car, 8.9 tons on ground . . . converts to clamshell, dragline, pile-driver. For more facts, write: Koehring Company, Milwaukee 16, Wisconsin.

KOEHRING



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K454

(Subsidiaries: KWIK-MIX • PARSONS • JOHNSON)

Association News

(Continued from page 68)

locomotive manufacturing plant at La-Grange, Ill., of the Electro-Motive Division of General Motors Corporation. This trip will be made in chartered buses which will depart from the hotel at 12:30 p.m. and return at about 6:00 p.m.

The separate sessions of the two groups will be devoted largely to the presentation and discussion of committee reports on present-day problems. There will be eight

such reports presented before the Bridge & Building sessions and six before the Roadmasters meeting. The Roadmasters, in addition, will hear brief reports from their three new standing committees.

The Roadmasters' sessions will be directed by H. W. Kellogg, president of the association, and engineer of track, Chesapeake & Ohio, Detroit, Mich. Lee Mayfield, president of the Bridge & Building Association, and resident engineer, Missouri Pacific Lines, Houston, Tex., will direct the sessions of that group.

The only formal social function on the program of these meetings is the annual banquet which, sponsored by the Track Supply Association and the Bridge and Building Supply Association, will be held on Tuesday evening.

American Railway Engineering Association

Members of the AREA who have not yet joined a committee, and wish to do so, must have their applications for committee membership for the year 1955 in the secretary's office by September 1. This also applies to members who may wish to transfer their membership from one committee to another.

The next regular meeting of the board of direction will be at the Palmer House in Chicago, August 6. Along with many routine matters, the board will consider and approve the AAR budget proposals of the different AREA committees for research work in 1955, as well as the budget for the Construction and Maintenance Section, AAR, for the coming year. It is also expected that the board will give consideration to plans for the 1955 annual meeting to be held March 15-17 at Chicago.



...THE NEW B-G Mixall MIXES ALL THE HOT PATCH YOU NEED, ANY TIME, ANYWHERE, ANY WEATHER

Now, the new Barber-Greene Mixall gives you the opportunity to offer high quality bituminous paving for driveways, sidewalks, service stations, industrial plants, parking lots . . . and other "black top" jobs at new low costs.

The Mixall, a completely new, compact and portable small-job maintenance and paving mixer, will produce up to 5 t.p.h. of any type hot mix . . . up to 10 t.p.h. of cold mix . . . will produce low slump Portland cement mixes. Built to be towed behind the aggregate truck for on-the-spot mixing, the Mixall is just as well suited for central plant or stock pile operation. The Mixall can work in any weather . . . even drying frozen aggregates.

Think of what you could do with the new B-G Mixall in your territory. Then see the Mixall at your first opportunity . . . or write for full information.

THE ONLY SMALL JOB MAINTENANCE MIXER WITH...

- ROTARY DRUM DRYING: The same principle used in largest B-G Continuous Dryers.
- POWER SKIP HOIST: Only 14" high for easy charging.
- TWIN SHAFT HEATED PUGMILL: "Kneading" action assures even coating of every aggregate particle.
- HIGH DISCHARGE: Can discharge directly into place, into wheelbarrows or gas buxies.

Barber-Greene

Aurora, Illinois, U. S. A.



Supply Trade News

General

The Portland Cement Association has announced the opening of two new district offices, one at Orlando, Fla., and one at New Orleans, La. In conjunction with opening of the new offices, James E. Dunn, manager of the Washington (D. C.) office, has been named district engineer in charge of the Orlando office. D. L. Chaney has been appointed manager at Washington succeeding Mr. Dunn. Andrew J. Spradlin has been appointed head of the New Orleans office.

Personal

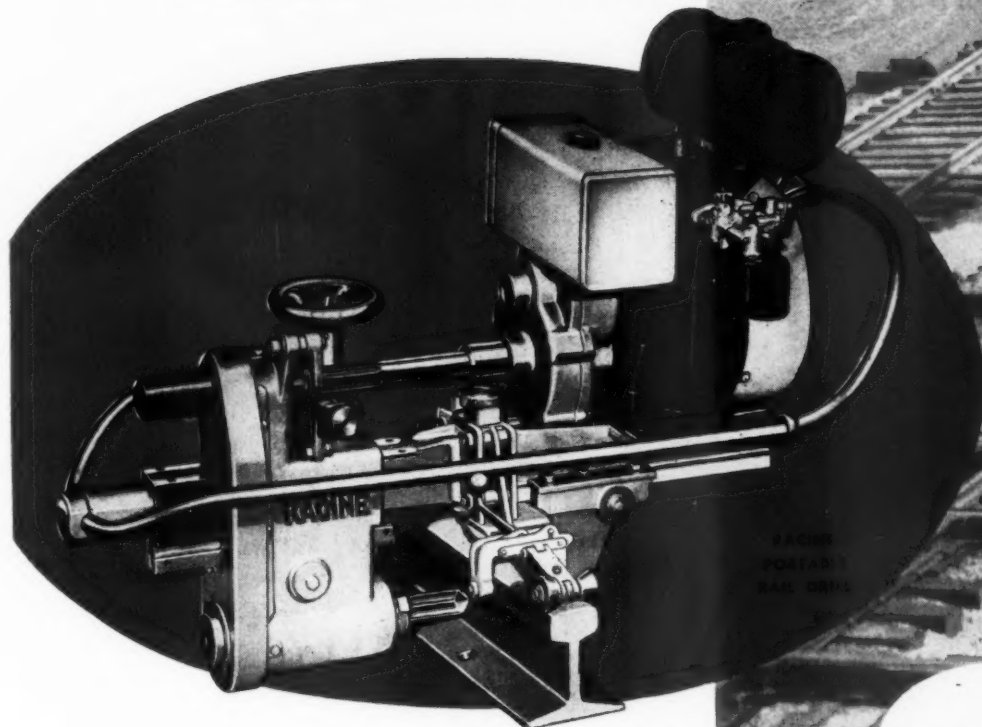
Thomas J. McGinnis, manager of the central control section of Koppers Company, Inc., has been named assistant to the vice-president and general manager of the Wood Preserving Division. S. K. Dee, assistant manager of the central staff unit, has been appointed to succeed Mr. McGinnis.

Mr. McGinnis, author of the com-
(Continued on page 72)



RAILWAY TRACK and STRUCTURES

You too can reduce track maintenance cost with **RACINE** **PORTABLE RAIL TOOLS**



- **LIGHT IN WEIGHT (only 165 lbs.)** — Mounted on rollers without outboard supports, this drill can be handled and operated by one man.
- **POWERFUL — FAST** — Finished holes can be made in one to two minutes depending on drill size and web thickness. Handles all size drills — fits all rails.
- **AUTOMATIC POWER FEED** — Special type automatic power feed insures predetermined drilling time per hole. Definite output per man-hour can be established. Drill life is greatly extended because Racine's controlled power feed prevents over-feed and drill breakage.
- **PRECISION BUILT** — An accurate, rugged drill press designed on horizontal lines. Gas-engine powered and built to machine tool precision.

RACINE HYDRAULICS &
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RACINE PORTABLE RAIL SAW
Fast — Accurate — Lightweight

WRITE FOR NEW CATALOG
showing Racine's complete
line of Rail Tools. Address:
**RACINE HYDRAULICS &
MACHINERY, INC., 2038**
Robert St., Racine,
Wisconsin.



Supply Trade News

(Continued from page 70)

pany's organizational manual, is a native of Chicago and a graduate of Purdue University with a BS degree in mechanical engineering. Prior to joining Koppers as organization administrator in 1946, he had been associated with the Norge Division of the Borg Warner Corporation and the Link Belt Company. Between 1942 and 1946, Mr. McGinnis served as an officer in the Army Ordnance Department where he rose to the rank of major.

Mr. Dee is a native of Concord, Mass., and received a BA degree in economics from Williams College. Following four

years of sales work in New York, he served as a government statistician from 1935 to 1943. During World War II, he held the rank of lieutenant in the Navy, after which he joined the Koppers organization as a reports administrator in 1946.

E. Ross Hogenson, head of the East Alton (Ill.) plant of the **Beall Tool Division of Hubbard & Co.**, has been appointed assistant to the vice-president in charge of complete operations (production and sales) of the division at East Alton. Mr. Hogenson had been associated with the company for 18 years as sales engineer at Chicago, and as head of the East Alton plant since January.



E. Ross Hogenson

D. F. McCandlish, manager of the **Air Reduction Sales Company** district office in Chicago, has been named regional manager of the North Central region at Chicago. Mr. McCandlish succeeds **S. H. Newburn**, who was recently appointed

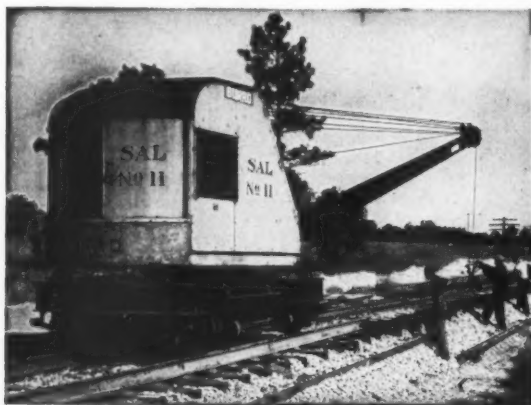


H. F. Colt, Jr.

president of **Air Reduction Canada Limited**. **S. S. Bruce, Jr.**, zone manager, Eastern Region of the railroad department, replaces Mr. McCandlish as Chicago district manager, and **H. F. Colt, Jr.**, manager of the El Paso (Tex.) district, has been named to succeed Mr. Bruce.

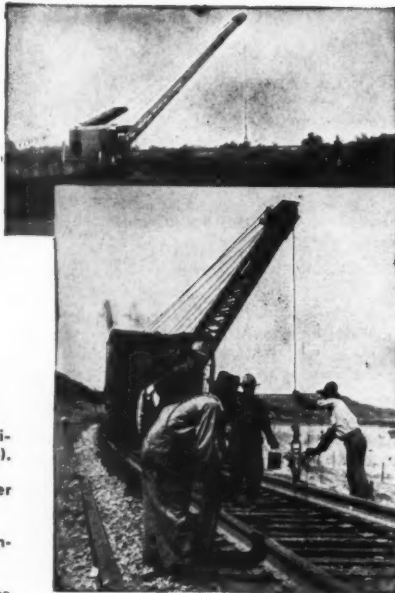


C. H. Anderson, formerly associated with **Armco Drainage & Metal Products, Inc.**, has been named general manager of **Stanley H. Smith & Co.**, Cleveland, Ohio.



Rail-Road Specialist

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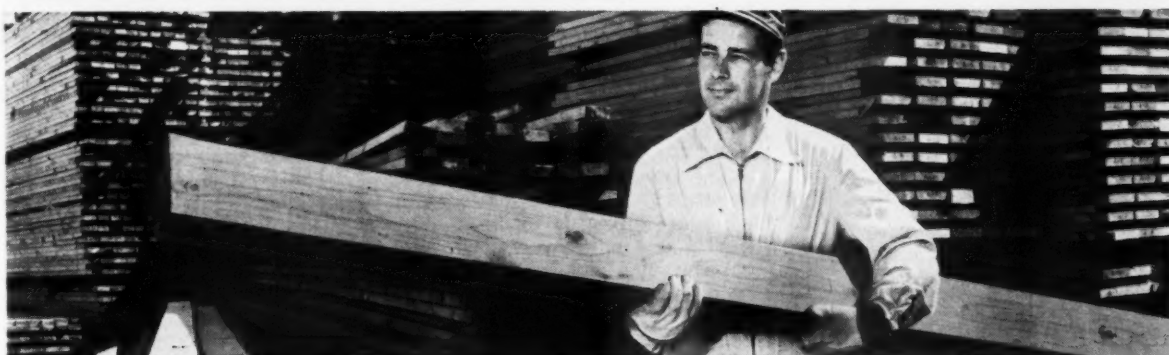
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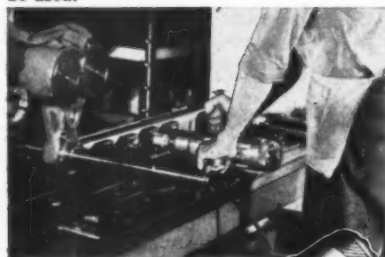
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Railroad _____

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BU-111

What's the Answer?

(Continued from page 55)

Of the many times that I made emergency track patrols as a section foreman, I remember two very distinctly. In one case we had patrolled the section three evenings in succession following very bad local storms without result. At about 6:00 p.m. of the fourth evening, there was a very light storm and I did not consider that it was worth while to go out on patrol, a job that could have been completed before dark.

The first train to come along was a passenger train. The little window in front of the engineer and the markers on the last coach, or rather the Pullman, were knocked out by the limbs of a very tall oak tree which had fallen and fouled the track, probably having been loosened by one of the previous storms. I heard nothing about this until the roadmaster told me, several days later, that some engineer had been in the superintendent's office a few days previously, and had told the superintendent that ours was the only gang that he had ever seen out at night and after heavy storms. In this instance a good record helped out in a case of poor judgment.

The other instance occurred at about 5:30 p.m. on a summer day when it appeared to be raining hard a few miles west of town. I got the men out and asked the agent for a line-up on trains. He said, "Man, it has not rained much." I said, "OK, get a line-up anyway," which he did. We put on the motor car and went to a point about two miles west of town. There we found three rail lengths of chat ballast stripped to about six inches below the bottom of the ties. It was necessary to flag a "red ball" freight train about 30 min later, but we had the track repaired sufficiently to let the train over in an hour, and probably saved a bad derailment.

We sometimes think spending money for patrolling track in these days of high wage rates is waste. But getting down to "brass tacks," it is better to patrol the track many times and find nothing than to miss one time and have a derailment on account of a washed-out hole. Once in a while, you may find a foreman with poor judgment, but I believe there are very few foremen who want to get out in the middle of the night unless it is absolutely necessary.

I would put the regular patrolling of track during working hours in

second place. This patrolling is done by the section gang where there are no supervisors. It is for the purpose of giving the track and right of way a good general inspection. In this inspection we look for defective rails, high or loose crossing planks, broken right-of-way fences, defective switches and especially out-of-line and low spots in the track, which may require immediate attention. Some branches which have very light rail may require a daily inspection, particularly during the winter months. However, most main tracks are now laid with heavy rail and fastenings, and the need for daily inspection no longer exists.

On most railroads, signalmen, B&B men, linemen and others who have to maintain a fairly close inspection, while going up and down the line on motor cars, can observe defects and report them to the section foreman. I have tried Monday, Wednesday and Friday patrols, which so far have given satisfaction with the five-day week. However, in extremely bad weather we may have to patrol every day, for after all, patrols are only for safety and you can't be too safe.

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Manufacturers' Literature

Following is a compilation of free literature, pamphlets, and data sheets offered by manufacturers to the railroad industry. Circle the number(s) on the coupon below to receive the information desired; the requests will be sent direct by the manufacturers.

1. **RAILS.** Bethlehem Steel Co. 20-page booklet (372) "The Railroad Rail, Raw Materials to Right of Way" describes and illustrates the evolution of the rail, diagrammatically shows rail cross-sections down through the years, follows the operation from rail steel ingots to steel rails, and discusses the making of rail steel.

2. **VERMICULITE CONCRETE.** Vermiculite Institute. 3 technical folders discuss fireproof, insulated roof decks: "Poured-in Place Vermiculite Concrete Over Vented Steel Roof Decks" (A); "Vermiculite Concrete Roof Decks Over Paper-Backed Wire Lath" (B) where joist spacing doesn't exceed 32" on centers, or (C) where temperatures are 50° F. or above during pouring and curing period. (Must put A, B, or C on coupon below to receive.)

3. **PORTABLE COMPRESSORS.** Schramm, Inc. 4-page 3-color bulletin (125) gives complete details, specifications and recommendations on the Pneumapower, the self-propelled Pneumatractor and the Unistage air compressors.

4. **COMBINATION SHOVEL.** Osgood-General. 4-page specification sheet (5421) illustrates and describes the ¾ yard Model 250 crawler mounted combination shovel, dragline, clamshell, crane, hoe, and piledriver; covers superstructure and crawler dimensions, weights; shows machine's capabilities, working range, and lifting capacity charts.

5. **MOTOR SCRAPERS.** Tractor Div., Allis-Chalmers Mfg. Co. Mechanical and performance features of Models TS-200 and TS-300 motor scrapers and motor wagon models TR-200 and TW-300 are detailed in two 22-page catalogs, include mechanical features and specifications.

6. **WELDING ALUMINUM.** Aluminum Company of America. 176-page book "Welding Alcoa Aluminum" illustrates and describes all of the practical methods for welding aluminum, including torch welding, arc welding (including inert-gas shielded arc welding), resistance welding, and pressure welding.

7. **METAL PROTECTIVE CHEMICALS.** American Chemical Paint Co. 8-page booklet (form 1171A) "Check List" lists metal-protective and paint-bonding chemicals for steel, zinc, aluminum, and other metals with industrial applications.

8. **WELDING & CUTTING EQUIPT.** The K-G Equipment Co. Catalog 54E "The Finest Welding & Cutting Equipment" describes, illustrates and gives specifications in 24-pages on the K-G line; includes special 4-page apparatus price list.

9. **WELDING ELECTRODES.** A. O. Smith Corp. 24-page bulletin (WE-166) "Stainless Steel Welding Electrode" details the metallurgy of stainless steels, gives a Smith stainless steel electrode selector table, describes A. O. Smith welding electrodes in detail.

10. **STEEL SHEET WEIGHT.** Armco Steel Corp. Handy sheet weight plastic slide-rule type calculator makes finding of weights for many types of steel sheets easy; reverse side has a gage, weight and thickness table for stainless steel, hot and cold rolled mild steel sheets, strip and plates. (Must enclose 50¢ to obtain this calculator.)

11. **SHOVELS.** Schield Bantam Co. Bulletin TSH-301 contains specifications and job action photos of Model T-35 ¾-yard 6-ton truck-mounted Bantam, and Bulletin CSH-301 contains identical data on Model C-35 ¾-yard crawler-mounted Bantam shovel-crane.

12. **OFF-TRACK MAINTENANCE EQUIPT.** Caterpillar Tractor Co. Booklet (form D459) "Railroad Maintenance With Cat Diesel Power" contains photos and job descriptions of a complete array of off-track maintenance equipment on ten different railroad locations.

13. **TIMBER TRUSSES.** Timber Engineering Co. Illustrated booklet shows how clear, unobstructed cargo handling and storage space is being obtained by the railroads by their use of clear span timber roof trusses in new freight house and storage facility construction; Project Sheet 4544 has photos of clear span timber construction in use.

14. **PIPING.** Engineering Service Dept., A. M. Byers Co. 32-page bulletin "Piping for Permanence" includes sample wrought iron pipe installations, a review of piping properties, and descriptions of individual service in building-piping systems.

15. **CRANES, SHOVELS, MOUNTINGS.** Thew Shovel Co. 12-page 3-hole punched catalog illustrates and describes the Lorain "42 Series," including the Moto-Shovel, Moto-Hoe, Moto-Clamshell, and Moto-Dragline; includes on-the-job action photos.

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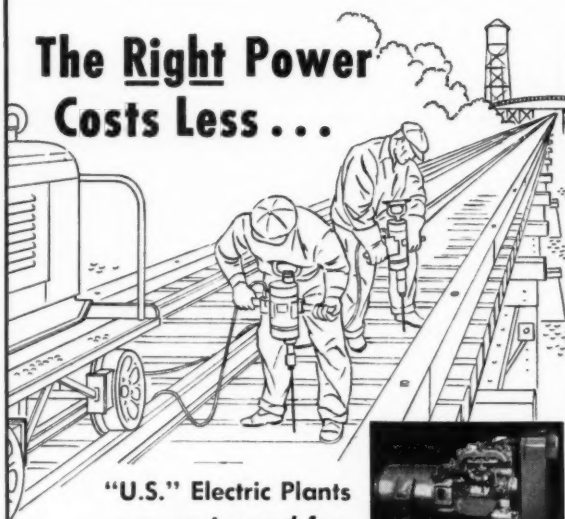
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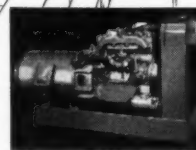
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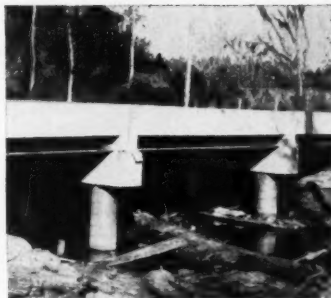
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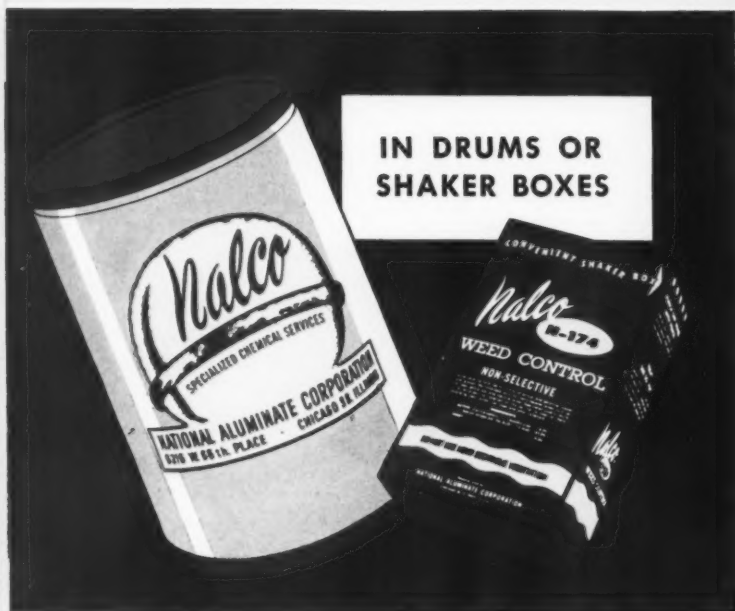
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